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77, 5.

# **CONVERSATIONS**

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ON

# **NATURE AND ART.**

---

**"Je n'étudie pas pour devenir savant, mais pour me rendre meilleur."**

*Lettre de St. Augustin à St. Jérôme.*

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**LONDON:**

**JOHN MURRAY, ALBEMARLE STREET.**

**MDCCCXXXVII.**



LONDON;  
Printed by A. SPOTTISWOOD,  
New-Street-Square.

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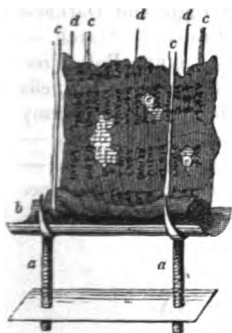
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*Engraving I.*

*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



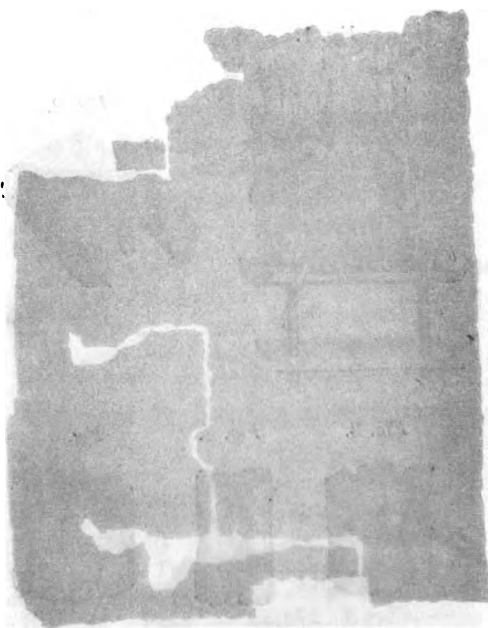
*Fig. 4.*



*Fig. 5.*

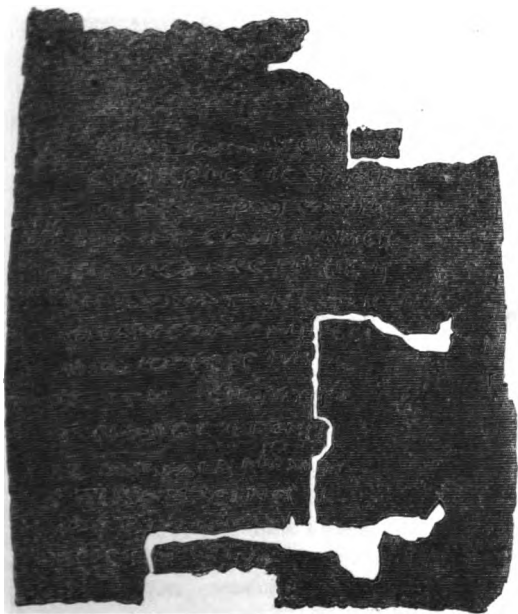


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*Engraving II.*





## DESCRIPTION OF THE ENGRAVINGS.

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### ENGRAVING I.

**Fig. 1. Machine for unrolling the papyrus MSS.**

***a a*** Screws for elevating or lowering the papyrus.

***b*** Pasteboard cradle, in which the papyrus is laid.

***c c c c*** Ribands which support the papyrus, and retain it firm in its position.

***d d d*** Threads which are attached to the goldbeater's skin, and which support the unrolled portion of the papyrus. The other ends of *c* and *d* are fastened to a wooden frame, which encloses the whole machine.

***e e e*** Deficiencies in the papyrus filled up with goldbeater's skin.

**Fig. 2. Papyrus, showing the title *a* affixed to it.**

**Fig. 3. Papyri found tied up in a bundle.**

**Fig. 4. Papyrus in double rolls (page 31.).**

**Fig. 5. Circular box, containing papyri rolled up and labelled.**

### ENGRAVING II.

**Fac-simile of an unrolled papyrus (page 32.).**



# CONVERSATIONS ON NATURE AND ART.

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## CHAPTER I.

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---

“ Yet still the arts now dawning gleam’d  
With hope of brightest day:  
Printing the key to science seem’d,  
A new and ready way.”

---

! FREDERICK and Henrietta Wilmot were the children of an officer in the army, whose wife

had been ordered to pass a year at Madeira, as the only means of restoring her declining health. Being unwilling to interrupt the education of their children, Mr. and Mrs. Wilmot determined upon leaving them at their respective schools; having confided the care of them, during the holidays, to Mrs. Fortescue, the widowed sister of Mr. Wilmot.

Idle, frivolous, and gay, Mr. and Mrs. Wilmot had bestowed little personal attention upon their children, but had considered that, in placing them at fashionable schools of high reputation, they had amply fulfilled their duties as parents, and had released themselves from all further necessity of watching the growth of their children's minds.

Frederick was now twelve years old, and, like most boys of his age, his acquirements were limited to a slight knowledge of Latin and Greek.

Henrietta was fifteen; she had been two years at school, and, being naturally quick and intelligent, had surpassed most of her companions in superficial attainments, and had acquired a degree of consequent importance among her school-fellows, which served but to increase her natural vanity and self-esteem.

Far different were her cousins Esther and Mary Fortescue, the first of the same age

as Henrietta, the second about five years younger.

Bereft of her husband soon after the birth of Mary, Mrs. Fortescue had devoted her whole attention to the education of her daughters, and, fully impressed with the responsibility of instilling right principles into the minds of her children, she had taken the whole charge of their education upon herself, and placing it on the only solid foundation — religious principle, she had endeavoured, under Divine assistance, to bring them up in a knowledge of the truth, “in the nurture and admonition of the Lord.”

Both amply repaid the fostering care of their mother, and Mary already gave promise of that amiable disposition, that solid good sense, that uncompromising rectitude, which were more fully shining forth in her elder sister.

The midsummer holidays had arrived, when their cousins were to come from school. Esther was absent on a visit to her friend Mrs. Clifford, but was to return upon the following day, so Mary only accompanied her mother to bring Henrietta and Frederick home.

Henrietta returned in high spirits, having gained the prize of her class, and impatiently awaited the arrival of the carrier with her trunk, that she might display her honours to her cousin. The trunk was brought in soon after the party

had retired to rest, but was speedily unpacked, and its treasure triumphantly exhibited. The prize book was a copy of Thomson's Seasons, splendidly bound in red morocco. Mary examined it attentively, and having expressed her admiration of the beauty of its exterior, proceeded to examine the inside of the volume.

"Why, what is this, Henrietta?" said she; "this is called the Aldine\* edition of the English poets, and here is a dolphin twisted round an anchor in the title page."

"I'm sure I can't tell you," replied Henrietta, "I should never have thought of asking such a question; what is the use of it? it can't be of much consequence."

"That I don't know," said Mary, "but mamma has always desired me to ask the meaning of every thing which I don't understand."

"Oh, that would be very troublesome," returned Henrietta, "and, after all, what is the use of knowing? I have had the book a week, and have never thought it worth while to inquire."

"Well, but had you not better ask mamma?"

"No, indeed," said Henrietta, "for, perhaps, it may be something which I *ought* to know, and then she will find out my ignorance."

\* Pickering has published a neat edition of the British poets under this title.



Here the conversation dropped, but Mary, though silent, was not satisfied, and the next morning she took the first opportunity of asking her mamma what was meant by the Aldine edition.

MRS. FORTESCUE.

I shall be most happy to tell you ; but surely, as the book is your cousin's, you might have asked her.

MARY.

I did, mamma ; but Henrietta could not tell me.

MRS. F.

Then, as she has been this morning in the library, she doubtless will have referred to the Biographical Dictionary, and be able now to give you all the information you require.

HENRIETTA.

No, indeed, I have not, aunt. I did not know where to find it.

MRS. F.

Then why did you not ask me ?

Henrietta was silent.

FREDERICK.

Because, aunt, she does not like you to think her so ignorant as not to know.

B 3

MRS. F.

And, therefore, Henrietta, you are so proud as to prefer going without information rather than confess your ignorance. This is, indeed, my dear, a false shame, and a feeling which will prove the greatest bar to your improvement. Believe me, there is no disgrace in confessing your ignorance, but there is great disgrace in *remaining* in it, when the means of knowledge lie in your power. Recollect the answer of the ancient philosopher, who, when asked how he had acquired such a fund of knowledge, replied, "By inquiring every thing which I did not know, and leaving nothing unsearched until I had found it out." Follow his example, and you will be surprised at how much you will daily learn. Whenever you meet with any thing in the course of your reading which you do not comprehend, you should not proceed with your book until you have consulted works of reference, and gained the desired information.

HENRIETTA.

But how very tiresome this would be, aunt; we should never get through our books, and should take a week in reading what is now only a day's lesson.

MRS. F.

And, pray, of what consequence would that be? What is the object of all reading? Surely not to be able to *say* how many books we have read, but to store our minds with useful and solid information; and assuredly that object is better attained by a careful perusal of one book, than by reading a dozen in a hurried and superficial manner. Recollect, Henrietta, that it is the quantity of knowledge you acquire, not the quantity of books which you read, which is the object you should always have in view. Read to learn, not to boast, and you will become wiser and better from your knowledge: but I will say no more upon the subject, as I trust that what I have already observed may prove sufficient. Let us now proceed to Mary's original question, and tell her about the *Aldine* poets.

MARY.

Thank you, mamma.

MRS. F.

The edition so termed is named after three celebrated Italian printers called the Aldini, father, son, and grandson, all distinguished by their talents and industry, and to whom we are indebted for great improvements in the art of printing. Aldus —

B 4

FREDERICK.

What a strange name !

MRS. F.

It was a corruption, or, rather, a diminutive, of his baptismal name, *Theobaldus*. But, to continue; Aldus Pius Manutius was born in 1447, and set up a printing press at Venice, where, in 1494, he published his first work. The beauty of his types was unrivalled, and he was the inventor of what was then called the Aldine, and has since been denominated the Roman or Cursive type.

HENRIETTA.

Is that the same as Italics ?

MRS. F.

Precisely; and it is said that he founded his types in imitation of the handwriting of Petrarch, who was himself a most diligent collector and transcriber of ancient manuscripts. Aldus first employed them in his edition of Virgil in 1501, the first book which ever appeared in the octavo size.

HENRIETTA.

This alone must have been a great improvement.

MRS. F.

Yes, before that period, the unwieldy size of books prevented them from being portable, so that this invention of Aldus was of the greatest utility. The neatness of the text, the beauty of the ink, and of the paper of the first printers have never been surpassed.

MARY.

Where was their ink made, mamma?

MRS. F.

The Italian printers had theirs chiefly from Paris. This ink has a lustre and brilliancy which our modern ink does not possess; but whether this proceeds from a difference in the preparation, or from the influence of age, time alone can decide.\* But it was the publication of the works of Aristotle which placed Manutius in the first rank among printers; and this alone, independent of all his other labours, would have entitled him to the gratitude of posterity; for it is impossible to form an adequate idea of the patience and sagacity it required to decypher the MSS. which served as bases to his editions, to supply omissions, and reconcile the various readings which presented

\* Valery, *Voyages en Italie*, t. iv. p. 411

themselves. Leo X. was not insensible to his merit, but repaid it by publishing a bull in 1513\*, by which he granted to Aldus, for fifteen years, the sole privilege of publishing whatever Greek and Latin books he had printed, or might afterwards print, as well as the exclusive use of the Italic type. Aldus was the intimate friend of the illustrious Picus of Mirandola †, and established a Typographical Academy, which reckoned among its members Erasmus, Cardinal Bembo, and many of the most distinguished persons of the age. This learned body used to assemble at the house of Manutius to examine the manuscripts, and to correct and decypher them. The inscription over the door of his room shows the zeal with which Aldus pursued his avocations. It was in Latin, but the translation is this: "Whoever thou art, Aldus begs and conjures thee, that if thou hast occasion to speak to him thou dost finish in a few words, and go away quickly; unless thou comest, like Hercules, to lend thy shoulder to the wearied Atlas. Then thou, and all that come here, will always find something to do."

\* Roscoe's Leo X., c. xi.

† He died in his 32d year, two months after his friend and companion Poliziano, who expired the day on which Charles VIII. entered Florence, 1494. Both were buried in the church of St. Mark, in that city.

FREDERICK.

What a curious inscription !

MRS. F.

Whimsical, like the style of the age ; but it shows the ardour with which he prosecuted those researches to which he devoted his time and his fortune. In short, when we reflect that the exertions of Manutius rescued so many writings from their insecure existence in manuscript, and thereby extended their circulation — that he consequently changed the direction of studies from the narrow bounds of monkish legends to the noblest works of Greece and Rome — we must consider him as having eminently contributed to the progress of civilisation and to the revival of learning, and must ever feel the deepest veneration for a man whose life was one continued series of labours which will extend their useful influence to the latest posterity.

HENRIETTA.

But, aunt, did you not say that there were three Aldini ?

MRS. F.

Yes, Aldus was succeeded by his son Paul, who, as a printer and editor, equalled his father. Devoted to the study of Cicero, he published

several editions of his works.\* He was chosen professor of eloquence to the Venetian Academy, and remained in that city until 1561, when he removed to Rome, and set up his printing-press in the capitol. He died in 1574, leaving a son, generally called Aldus the younger, who had distinguished himself by his precocious talents, and was appointed by Clement VIII. to direct the presses of the Vatican. Aldus the younger died in 1597, leaving his affairs in the greatest disorder. The valuable library collected by his father and grandfather (and which he had wished to leave to the republic of Venice) was dispersed among his creditors, and the press of Aldus ceased to exist, after having flourished for nearly a century.†

#### HENRIETTA.

Thank you, aunt, for this very interesting account, which my foolish false shame nearly made me lose hearing. But now you have not told us the meaning of the dolphin twisted round an anchor, which I see in the title-page of my book.

\* The number of copies taken off at one edition in those times was very small: so that certain works of Cicero, published by Paul Manutius, were reprinted almost annually.

† See Roscoe's *Leo X.* and *Biographie Universelle*, for detailed lives of the Aldini.



MRS. F.

That was the distinguishing mark of the Aldine press; for, at that time, all the printers used peculiar signs, by which the works of their press might immediately be recognised.

HENRIETTA.

How very much we read that books were prized formerly.

MRS. F.

Yes, so long as they remained in manuscript their cost was very great. In 690, Aldfred, King of Northumberland, gave an estate of eight hides of land for a work upon cosmography.

MARY.

Oh, pray stop, mamma, and tell me the meaning of that word.

FREDERICK.

Its derivation, Mary, is from two Greek words, *kosmos*, the world, and *grapho*, to write.

MRS. F.

Therefore, *cosmography* is a treatise on the general system of the universe—its construction, its form, and the relation of each part to the whole. Cosmography divides itself into

two branches; astronomy, which treats of the heavenly bodies, and geography, which has for its object the description of the earth.\*

HENRIETTA.

Thank you, aunt, for the explanation. I never rightly understood the difference.

MARY.

But what is a hide?

HENRIETTA.

A hundred acres.

MRS. F.

A Countess of Anjou, in the 15th century, paid for one book 200 sheep, 5 quarters of wheat, and the same quantity of rye and millet†; and in early times the loan of a book was considered to be an affair of such importance, that, in 1299, the Bishop of Winchester, on borrowing a Bible from a convent in that city, was obliged to give a bond for its

\* Guizot, *Dictionnaire des Synonymes*.

† The sums given in modern times have been proportionably great. In 1812, the Marquis of Blandford gave 2260*l.* sterling for an edition of Boccaccio, (Venice, 1471,) which has since passed into the library of Lord Spencer. So Pope says,

“ In books, not authors, curious is my lord;  
To all their dated backs he turns you round:  
These Aldus printed,” &c.

restoration, drawn up in the most solemn manner; and Louis XI. (in 1471) was compelled to deposit a large quantity of plate, and to get some of his nobles to join with him in a bond, under a high penalty to restore it, before he could procure the loan of a book which he borrowed from the faculty of medicine at Paris.

HENRIETTA.

How very few books people had then. I read the other day, in a description of Paris, that King John (of France) had only eight or ten volumes in the royal library, and that Charles V. increased their number to 110.

MARY.

And I have read, too, that, in 855, there was not a copy of Cicero in France.

MRS. F.

Very likely; but then we must also take into consideration the ignorance of those times, when learning was almost entirely confined to the clergy, and, even among them, so much ignorance existed, that by an ordinance of the Council of Narbonne, held in 589, they were obliged to forbid that any one should be received into the ecclesiastical state who could not *at least read*; and, in the time of Alfred,

there were few priests, south of the Humber, who could translate the Latin service,\*; indeed, had not divine service been continued to be performed in Latin, the language would probably have been forgotten, and the works of the ancients have been irrecoverably lost to posterity.† Kings and other great men at that time could only make their mark; Charlemagne was unable to sign his own name, and never made any progress in literature until the age of forty-five.

#### FREDERICK.

But how was it, aunt, that books had become so scarce, for the ancients had very large libraries? In the Philadelphian, at Alexandria, for instance, there were said to be 700,000 volumes.

#### MRS. F.

Because, in the various wars which have devastated the earth, conquerors have not been content with destroying the vanquished, but have extended their vengeance even to their books. The Romans, Jews, and Christians, mutually burnt the books of each other, the Spaniards those of the Moors, the Paritans

\* "In Wessex, Alfred says, there was not one."

† Schmidt, *Histoire des Allemands*, vol. i. p. 329.

those of the Papists, and even Cromwell, in his fanatic zeal, set fire to the library at Oxford, one of the most curious in Europe. The Florentines burnt the books of the Medici; and the sack of Rome, by the Constable Bourbon, was fatal to the treasures of the Vatican. The same year\* the Turks destroyed the beautiful library at Buda of Mathias Corvinus, who had collected 50,000 volumes. The library of the Electors was part of the spoils of the Palatinate, but fortunately, instead of being burnt, it was transferred by Maximilian of Bavaria to the Vatican.

HENRIETTA.

And then there is the burning of the Alexandrian library, by the Caliph Omar.†

MRS. F.

Yes, as the story is told, 4000 baths of the city were heated for six months with this precious fuel; but the fact has always remained a subject of much doubt.

FREDERICK.

Why?

MRS. F.

On account of the silence of two early Chris-

\* A. D. 1527.

† A. D. 640

tian authors, one of whom \* describes the taking of Alexandria, and could hardly have suffered so important a circumstance to pass unnoticed.† The first mention of the fact is by Abulpharagius, an historian who wrote 600 years after the event; but, on the whole, I should say that modern historians are generally disposed to admit the act, which seems, however, so contrary to the general character of either Omar or Amrou, that we must look upon it as an action demanded by the barbarous superstition of their age, rather than to any wish or impulse of their own.

HENRIETTA.

When was it that the learned began to occupy themselves in the recovery of books?

MRS. F.

In the 15th century, and monasteries were then diligently searched for manuscripts. The Pandects of Justinian were discovered at Amalfi, Tacitus in a convent at Westphalia, and Petrarch was the fortunate discoverer of a portion of Cicero's Letters in the library of the chapter of Verona.

\* Euty chius.

† Gibbon's Decline and Fall, chap. li.

## HENRIETTA.

I should like to see the MS. discovered by Petrarch.

## MRS. F.

It is in the Laurentian library at Florence, as well as the poet's copy of this and several others of Cicero's works\*, for Petrarch transcribed many manuscripts, and we have before alluded to the beauty of his handwriting; but among the emperors, Theodosius the younger was so celebrated for the elegance with which he transcribed religious works as to acquire the epithet of *Calligraphes*, or fair writer.† Many manuscripts have been recovered in the most singular manner. Part of Livy, for instance, was found by a man of letters on his battle-dore, and Sir Robert Cotton discovered his tailor on the point of cutting up for measures the original Magna Charta; but we have reason to believe that many valuable works of the ancients have been lost from the monks having erased the writings, in order to inscribe their own legends on the parchment, the value of the material being at that time so great as to compensate them for the labour. The celebrated Maio has discovered, by the assistance of chemistry, a liquid with which he washes the

\* Valery, *Voyages en Italie*, iii. 41.

† Gibbon, chap. xxxii.

parchment, which restores the original characters, and thus many valuable fragments of the ancient classical writers have been restored, interlined with monkish legends.

HENRIETTA.

Did you ever see any, aunt?

MRS. F.

Yes, I saw one in the Ambrosian library at Milan, where there are several. The Orations of Cicero, over which had been transcribed the poems of a priest of the 6th century; other portions of the same author, under a Latin translation of the acts of the Council of Chalcedon; the letters of Marcus Aurelius, under another history of the same council; and the Institutes of Gaius \*, which were not only covered with a treatise of St. Jerome, but had also a *third* writing between them, which likewise consisted of epistles and meditations of the same saint, so that the writing had been erased twice from the parchment.†

FREDERICK.

Are these the writings which I have heard called palimpsests?

\* A celebrated Roman writer upon Jurisprudence.

† Valery, *Voyages en Italie*, t. i. p. 302. This last palimpsest is at Verona.



MRS. F.

Yes, the term is derived from the Greek *palin*, again, and *psao*, scrape.

FREDERICK.

Aunt, since you were telling us of the value of manuscripts, I have just recollected that Ptolemy Physcon, at the time of the famine, refused to furnish the Athenians with corn, unless they gave him the original copies of Sophocles, Æschylus, and Euripides.

MRS. F.

Well remembered, Frederick. Books have often been the price of conquest, particularly in Italy. A copy of Cæsar's Commentaries was the spoils of a victory of the Genoese fleet over the king of Arragon, in 1435. The Pandects of Justinian were the price of the surrender of Pisa; and, even in modern times, the cession of 500 MSS. of the Vatican was one of the articles of the treaty at Tolentino.

FREDERICK.

I beg your pardon for interrupting you, aunt, but where are the Pandects now?

MRS. F.

At Florence: their history is singular. Dis-

covered at Amalfi, they were taken at the siege of that city in 1135, by the Pisans. Many think it was a copy sent into Italy by Justinian himself: be that as it may, it is the oldest in existence. Gino Capponi having forced Pisa to surrender by famine, carried away the Pandects as the terms of capitulation, and took them to Florence \*, when they were placed in the *Palazzo vecchio*, and only shown, in the time of the republic, by special permission of the seigniory, and by torch-light. They were afterwards removed to the Laurentian library, and the key kept by one of the officers of the court. They are still there; one volume is locked up, the other is placed open in a glass case.† But I have one more instance which occurs to me, of the desire of acquiring books, in the celebrated Al Mamoun, son of Haroun al Raschid, who, when he defeated the Greek emperor, Michael the Stammerer, required that he should give him a certain number of Greek books as a tribute.

#### FREDERICK.

Was it not Haroun al Raschid who sent a clock to Charlemagne?

\* A. D. 1406.

† Valery, *Voyages en Italie*, t. iii. p. 38.

MRS. F.

Yes; the first that had ever been seen in Europe; but it was not a clock such as we use now, but a water clock, or *clepsydra*, so called from the Greek, *klepto* to steal, and *udor* water; the time being measured by the escape or stealing of water through a hole in the bottom of the vessel. Haroun al Raschid himself was a great patron of literature, and he never went a journey without being accompanied by at least a hundred men of learning. But it is his son, Al Mamoun\*, who may be regarded as the father of science among the Arabians. He invited the learned of all countries to his court, he exhausted his treasures in collecting manuscripts, in patronising astronomy, and in promoting the interests of science, and the reign of Al Mamoun may be looked upon as giving the same impulse to the eastern nations, as the age of Augustus, or Leo, exerted over the western. In the midst of ignorance and superstition Al Mamoun shines pre-eminent, and sheds a ray of lustre over the dark ages in which he lived †; but we must leave off talking, for the morning is nearly gone, and we have not begun our studies.

\* Succeeded his brother, A. D. 813.

† Sismondi, *Littérature du Midi de l'Europe*, t. i. p. 45.

HENRIETTA.

Oh, aunt, I am so sorry ! for I had a great many questions to ask you. I wished you to tell me what made parchment so scarce as to induce the monks to use the old manuscript.

MRS. F.

It had never been plentiful; for the elaborate preparation it required had always made it a costly article, and it was only manufactured at one place.

HENRIETTA.

But did they not make paper of papyrus ?

MRS. F.

Yes, papyrus paper was known, but it had become scarce since the conquest of Egypt by the Saracens; — but I shall be happy to continue the subject another day; and now we must leave off, for we have done nothing this morning.

HENRIETTA.

Do you call this *nothing*, aunt ? I am sure that I have learnt more than in a week's common reading.

MRS. F.

More general information, no doubt, if you read in the superficial manner which you de-

scribe; but, improving as these conversations may be, they can never stand in the place of regular study. Reading and conversation should be combined. "Read and learn," said his mother to Sir William Jones; and though I am far from giving you that answer to your inquiries after information, yet, believe me, that all the desultory conversations we may hold, can never compensate for that regular, systematic course of study, which alone can constitute a good education; — but I hear a ring at the bell — that must be Esther.

All ran out to meet her, for Esther was welcomed with pleasure wherever she went. Her kindness and consideration had made her as great a favourite among the younger branches of the family, as her sensible, well-regulated mind had endeared her to her mother. She had passed a most agreeable visit with her friend, Mrs. Clifford, who lived in the neighbourhood of Guildford, and had obtained permission to show her beautiful garden to her sisters and cousins; for, disinterested and generous by nature, Esther enjoyed nothing alone, and felt no indulgence a source of gratification to herself, unless it could be shared by those she loved.

## CHAPTER II.

## PAPYRUS MANUSCRIPTS.

PAPYRI OF HERCULANEUM — THEIR DISCOVERY — METHOD OF UNROLLING THEM — ONLY WRITTEN UPON ONE SIDE — TITLES, WHERE PLACED. — PRESENT STATE OF THE 1756 MSS. — PAPYRUS PAPER — HOW MADE. — PAPYRUS AT STRACUSE. — CHEVALIER LANDOLINA. — LAWS SET TO MUSIC. — TEUTONIC PARAPHRASE OF THE BIBLE. — CÆDMON. — ARUNDELIAN MARBLES. — WILLS OF THE ROMAN SOLDIERS. — WOOD. — BONE MEMORANDA — WAX. — HOUSEHOLD BOOK OF PHILIP LE BEL. — TALIPOT TREE. — BARK BOOKS. — INDIAN PAPER. — LINEN CLOTH. — SKINS. — GOLD MSS. — GRADUAL OF ST. GREGORY. — PARCHMENT. — PURPLE VELLUM. — SILK PAPER — COTTON — LINEN. — CODEX ARGENTEUS. — BLOCK PRINTING. — MARCO POLO.

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“ *Papyrus*, verdant on the banks of Nile,  
 Spread its thin leaf, and waved its silvery style;  
 Its plastic pellicles Invention took,  
 To form the polish’d page and letter’d book,  
 And on its folds, with skill consummate taught  
 To paint in mystic colours sound and thought.”

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THE following afternoon the conversation was resumed.

MRS. F.

In order that I may be able to give you a more detailed account of the various modes and materials employed for transmitting knowledge

before the discovery of printing, I have brought down some notes which I made upon the subject many years since ; but, before we leave the subject of Manuscripts, I must tell you something of the papyri discovered at Herculaneum.

HENRIETTA.

Thank you, Aunt ; I should so much like to know all about the Herculaneum and Pompeii MSS.

MRS. F.

Not Pompeii, Henrietta, for those which were found in that city fall into powder as soon as touched. Those of Herculaneum alone are in a state to be unrolled, and the difficulty and delicacy of the undertaking render it a most laborious and ingenious operation.

ESTHER.

Where were these papyri found ?

MRS. F.

In prosecuting the excavations at Herculaneum, the workmen came in 1753 to a small room which had presses all round it, and one in the centre, containing books on both sides, but the wood of the press was so completely carbonised that it fell into pieces when touched.

C 2

ESTHER.

How did they know they were books?

MRS. F.

The order in which they were found, carefully arranged one over the other, was the only circumstance which excited attention, and convinced the workmen that they could not be wood or cinders. Upon closer examination characters were discovered upon them, which the learned immediately occupied themselves in endeavouring to decipher.

HENRIETTA.

Were there none in any other parts of the city?

MRS. F.

Probably there may have been many lost to us, but as they were in a mass with rubbish, lava, &c. they could not be recognised; for you must recollect that the excavations of Herculaneum are about 100 palmi \* under ground: indeed the accumulated mass of lava and ashes has buried the city at depths from 70 to 112 feet, and so completely filled up the town, that all the work is carried on with pickaxes. It is to this room (which was in a country house) not being

\* The Neapolitan palm is rather more than ten English inches.



entirely choked up, that we owe the fortunate circumstance of their preservation. A few more were found in the portico of the same house, preserved in little portable boxes, and some others in another room in the same habitation; making together 1756 manuscripts, all written upon papyrus. Various were the means employed to unroll them: some were cut into two longitudinally, by which a small portion of the characters was rendered visible: in short, they were subjected to all kinds of attempts, until Father Piaggio discovered the present manner of unrolling them.

HENRIETTA.

What is it?

MRS. F.

The papyrus is laid upon cotton, supported by a piece of pasteboard, which lies upon two semicircular pieces of metal. The workman begins by glueing small pieces of goldbeater's skin upon the back of the papyrus until the whole of the exterior of the roll is covered. He then attaches three threads to the end of the goldbeater's skin, and suspending them to the top of the frame, proceeds, with the point of a needle, to detach from the roll two or three lines of the end of the papyrus,

\*c 3

which has been made of a tolerable consistency by the addition of the goldbeater's skin. As soon as these lines are unrolled, the same operation of applying the goldbeater's skin is repeated, until, by the greatest patience and diligence, the whole MS. is gradually unrolled. Here is a little sketch of the machine (which is placed in a kind of frame), which will perhaps better enable you to understand the process (*Fig. 1.*).

HENRIETTA.

But then, Aunt, they can only read one side of the page.

MRS. F.

Fortunately, the Manuscripts are generally only written upon one side of the papyrus, otherwise the operation would be impossible. There is, however, one papyrus which is written on both sides. It would appear to be an original MS.; and the author having filled the end of his volume before he had arrived at the conclusion of his subject, has written three pages on the other side of the papyrus. I also saw, in the Ambrosian library at Milan, a Josephus in papyrus, which is said to be of the fourth century, and is also written upon both sides of the paper.

## ESTHER.

How did the ancients arrange their books; because it must have been very difficult to distinguish one from another, among so many rolls?

## MRS. F.

Those found in the kind of press or bookcase which I have described, were arranged horizontally along the shelves. Their titles were either written on the end of the papyrus\* or upon a piece of papyrus paper fastened to the middle of the papyrus, in this way (*Fig. 2.*). Some papyri were found tied up in bundles (*Fig. 3.*); others in double rolls, as if the last reader had left them open where he left off reading (*Fig. 4.*); and some in a box, as I have before mentioned, that they might be carried about in safety (*Fig. 5.*). From the blank paper which is often found round the papyri, it would appear that each volume had a sheet of blank paper rolled round it, in order to protect the fragile material of which it was composed. The marks of the lines ruled for the guide of the copyist are still visible; and the ancients appear to have had their *large paper* copies of

\* Whether the title was also written, as some suppose, at the beginning, cannot be discovered from the papyri of Herculaneum, none of them being in a sufficient state of preservation to decide the point.

their works, as well as the moderns. The size of the Greek MSS. is generally smaller than the Latin; the former being from 8 to 12 inches, the latter from 12 to 16, broad. Some are 110 pages long, others upwards of 62 feet (75 palmi) by measurement. This is an engraving shaded so as to give an idea of the state of the MSS. when unrolled (Engraving II.).

HENRIETTA.

What a ragged, torn looking thing.

MRS. F.

True; but when you take into consideration the difficulty of the task, it is wonderful that the unrolling is ever effected at all. If the glue be put on in too large quantities, it will probably remove a portion of the next layer of the papyrus; a breath of air will carry away all these pulverized particles, and dust is so fatal, that one Manuscript having become covered with dust, it took a whole year to remove it.

ESTHER.

Then, what is done with those that are unrolled to prevent such an accident?

MRS. F.

They are put into frames with glasses over

them, and are eventually hung up in the Museum. One has been left in its whole length in order to give an idea of the original form and extent of the MSS.; but this system has not been followed, it being found more convenient for the draughtsmen and interpreters, to divide the papyrus into several fragments, as they require to turn the page in different lights in order the better to decipher the characters. The manuscript is first passed to the draughtsman, who copies the characters with the greatest exactness, so as to render it a complete fac-simile of the original; his copy is then submitted to the inspection of the interpreters, who having approved of it, pass it to the engraver; he, having engraved it, returns it to the interpreters, who then publish it in their learned and elaborate work. Here is a little specimen, which, although you do not understand Greek, will show you the method of proceeding.

HENRIETTA.

How many manuscripts are unrolled?

MRS. F.

Of the 1756 papyri found at Herculaneum, 210 have been entirely and usefully unrolled \*; 127

\* This is the report of 1835.

have been partly opened ; but the work has been suspended from finding them illegible ; and 205 could not be unrolled because they were not sufficiently compact to bear the application of the goldbeater's skin ; 27 have been presented by the government to England and France ; 23 have been used for the purposes of experiment ; and 1164 remain untouched : so they may yet contain much that is valuable and interesting. \*

FREDERICK.

What are the subjects of those which have been unrolled ?

MRS. F.

This library was found in what appears to have been the country house of an Epicurean philosopher, and the works which have been as yet deciphered are naturally those of his school : *all*, I believe, are writings which were before unknown to the moderns ; and when we reflect upon the number yet to be unrolled, we may hope that great riches are still concealed in this unique collection. Whatever may be, however, the intrinsic value of the writings already published, they may yet serve to elucidate others of greater interest ; and therefore, the plan which

\* See *Officina de' Papiri descritta dal Canonico de Jorio*.

the Academy adopt, of publishing every fragment which they unroll, is the most prudent, the most useful, and the most likely to lead to beneficial results.

ESTHER.

Where was papyrus paper first manufactured, Mamma?

MRS. F.

That is unknown; but there existed manufactories of it at Memphis 300 years before the reign of Alexander. Afterwards, and at the time of the conquest of Egypt by the Romans, it was chiefly made at Alexandria. Till this conquest, however, the paper was of an inferior quality, but the Roman artists paid great attention to its improvement; and it was exported in large quantities from Egypt. The possession of that country by the Saracens interrupted and diminished the export, and few manuscripts on papyrus are of a later date than the eighth or ninth century.

ESTHER.

Of what part of the plant was it made?

MRS. F.

The learned differ upon this point; but I believe the most received opinion is, that it was

made from the stalk (the upper and lower extremities of which were rejected\*), which was divided longitudinally into small thin plates. These were placed side by side, and then others put across them to strengthen and unite them. The whole was dried with a woollen cloth, and, after some other preparations, rendered fit for writing upon.† The papyrus is still found in the river Anapus near Syracuse, where it was probably transported by Hiero‡ (or some of the other tyrants of Syracuse) from Egypt.§

ESTHER.

How I should like to see it growing !

MRS. F.

The Syracusan farmers used to cut it to bind up their sheaves of corn; but this custom is now prohibited; and the graceful papyrus, bending its tufted head over the clear waters of the river, presents a most elegant study to the artist. An attempt at reviving the papyrus paper has been

\* This portion of the stalk served to make an inferior description of paper.

† De Jorio.

‡ Denon.

§ According to Pliny the roots of the papyrus served for fuel, and the bark was converted into sails, mats, and ropes; its juice was applied to medicinal purposes; the farina of the flower afforded the strongest gluten; its stalk was twisted into canoes and boats; and, indeed, it is in a basket of papyrus that Moses is supposed to have been exposed upon the Nile.



made, by the Chevalier Landolina\* of Syracuse; but as the best papyrus paper could only prove a poor substitute for linen paper, the attempt is a mere object of antiquarian curiosity. But I think that we must now dismiss the subject of papyrus, and proceed to the other various materials and methods employed for transmitting knowledge.

FREDERICK.

Thank you, Aunt.

MRS. F.

In the earliest ages of society, the simple laws which were then sufficient for a community were, among the Greeks, set to music and chanted or sung.† This mode of conveying instruction was continued to a later period, and was so customary among the Teutonic nations, that paraphrases of the Bible were not unfrequently made in verse; the achievements of their ancestors were celebrated in song, and, as I before said, the Scriptures themselves were turned into rhyme.

ESTHER.

There is a very interesting account of Cæd-

\* Hughes's Travels, vol. i. p. 90.

† See Sir Francis Palgrave's Anglo-Saxon History, and the Life of Caeton, in the Library of Useful Knowledge, from which the following account is principally taken.

mon, the great Saxon versifier of the Bible, in Sir Francis Palgrave's entertaining History of England. I will read it to you this evening.

MRS. F.

The next step in transmitting knowledge was the engraving of their laws, by the Greeks and Romans, upon tables of wood, ivory, brass, or stone.

ESTHER.

I have often heard of the Arundelian Marbles being referred to for dates; pray, Mamma, what are they?

MRS. F.

The Arundelian consist of a series of sculptured marbles, collected in Greece at the expense of Thomas Howard, who was Earl of Arundel in the reigns of James and Charles the First. They comprise statues and gems as well as inscriptions. The latter are those to which you allude, and which are the objects of our present attention. They were inserted into the walls of the garden at the back of Arundel House in the Strand, and were examined by Selden, who deciphered and published several of the inscriptions in 1628. During the civil wars, the Arundel family being obliged to leave their mansion, the parliament put it under sequestration, and suffered the marbles to be plundered

and defaced. It is even asserted that part of the Parian Chronicle was worked up in repairing a chimney; and it is supposed that not more than half of these valuable inscriptions escaped destruction. Those that were preserved were presented to the University of Oxford, where they still remain.

HENRIETTA.

What is the nature of the inscriptions?

MRS. F.

Principally records of treaties, public contracts, public thanks of the state to individuals, &c; but the most curious inscription is that which I have just alluded to,—the Parian Chronicle,—which gives a chronological account of the principal events in Grecian (particularly in Athenian) history, from the time of Cecrops\* to the year B. C. 264; a period of 1318 years.† But to return to engraving upon metals.

FREDERICK.

Aunt, I can give you an instance: the Roman soldiers were allowed, on the field of battle, to write their wills upon their bucklers or scabbards.

\* B. C. 1582.

† Elme's Dictionary of the Fine Arts.

MRS. F.

Well recollected, Frederick. I am glad to see that you can apply your reading ; but we must not wander from our history of writing. Brass, lead, and copper were used for inscriptions, but wood was most generally employed, both for public as well as for private purposes. In the fourth century, the laws of the empire were inscribed upon wooden tables.

ESTHER.

Did not the ancients write upon bone or ivory ?

MRS. F.

Yes. Among the relics in the Museum at Naples, is a number of small oblong sheets of bone, fastened at their extremity by a piece of metal, which runs through a hole perforated through each, just like those which are used by us for memoranda. The ancients wrote upon these tablets with pencils of *minium*, or red lead, which is rubbed out as easily as our black lead ; so you see that even this little contrivance is not a modern invention. \*

FREDERICK.

But did not the Romans cover their tablets with wax ?

\* De Jorio.

MRS. F.

Yes. With their manner of writing upon them, with a metal or ivory style, you are no doubt well acquainted; but these waxen tablets were employed till a very late period. At Geneva, I saw in the library a fragment of the account of the household expenses of Philip the Fair\*, written upon waxen tablets with a style. The MS. is almost illegible now, but was deciphered before it became in such bad order.†

ESTHER.

Shakspeare alludes to the table books in Henry the Fourth‡, when the Archbishop of York says,

“ And therefore will he wipe his tables clean,  
And keep no tell-tale to his memory ; ”

and Hamlet also, after his interview with his father's ghost, says §,

“ My tables, — meet it is I set it down.”

MRS. F.

We also read that Lady Jane Grey gave her tables to Sir John Gage, the Constable of the Tower, before her execution; but, we must now proceed to writing or engraving upon wood.

\* For part of the year 1308.

† Part ii. act iv. sc. 1.

‡ Valery, vol. i. p. 18.

§ Act i. sc. v.

## ESTHER.

The Scandinavian nations always appear to have employed wood, before their communication with the Latin Missionaries; and Sir F. Palgrave says that our verb *to write*, is derived from a Teutonic root, signifying to scratch or tear\*, and is one of the testimonies of this usage. The Cymri adopted the same plan. Their poems were graven upon small stems or rods, one line upon each face of the rod; and the old English word, *stave*, as applied to a stanza, is probably a relic of the practice which, in early ages, prevailed in the West. In the East, you will find the same custom still subsisting, The slips of bamboo, upon which the inhabitants of the Indian Archipelago now *write* or *scratch* their compositions with a bodkin, are substantially the same with our ancient staves." †

## HENRIETTA.

What kind of wood was used?

## MRS. F.

The ancients employed box and citron wood, but beech was principally used in the middle ages.

\* *Ritzen* or *reissen*.

† Anglo-Saxon History, p. 153.

ESTHER.

Were not leaves also used ?

MRS. F.

Yes ; and even in the present day, several of the eastern nations employ the leaves of the Talipot-tree.\*

Hence the word *folio*, from *folium* a leaf, and the meaning of *leaf* when applied to books. But this mode of writing seems to have been superseded by the use of the inner bark of trees, of the lime particularly. This bark the Romans called *liber* ; hence the Latin word for a book, and the English words derived from it, *library*, &c. Our Saxon ancestors commonly employed the bark of the beech tree, called *boc*, in their language, whence our word *book* owes its origin. A library of bark books has recently been discovered among the Calmucs ; the Birmans still use bark for their writings ; and the *Indian paper*, employed by engravers for their fine engravings, is also made of bark. It is imported from China ; its beauty consists in the paleness of its colour, and the texture is so delicate that it is never pasted ; the mere blow given in stamping the copper-plate upon it being sufficient to attach it to the paper upon which it is laid.

\* *Corypha umbraculifera*.

## ESTHER.

Linen cloth, upon which the letters were painted, was used by the Egyptians ; and I recollect seeing a large roll of it which had been taken out of a mummy in the Museum you took us to see.

## MRS. F.

Yes; and the same material was also employed by the Romans : but skins of animals were, according to Herodotus, first adapted to the purposes of writing by the Ionians, who could only procure papyrus at a great expense ; those of sheep, goats, and asses were preferred ; and the Persians also employed the same material. Leather or skins, prepared in the modern manner, were often used by the Jews, on which to write the Scriptures ; and the poems of Homer were once written upon the intestines of a serpent, in letters of gold, and the MS. was 120 feet long.

## HENRIETTA.

Is this still to be seen, Aunt ?

## MRS. F.

No : it was deposited in the Philadelphian Library, and afterwards taken to Constantinople, where it was destroyed by fire in the sixth century.



HENRIETTA.

Did they often write in gold letters?

MRS. F.

Yes, many MSS. so written are scattered in the various libraries of Europe. There is a Gospel in the Laurentian Library at Florence in letters of gold \*, and at Monza, I saw a most interesting manuscript,—the *Gradual* (or choir book) given by St. Gregory to the Cathedral of Monza. It is of purple leather, and the letters are in gold and silver. In this collection, is also a precious papyrus inventory of the relics presented by that great pope to Queen Theolinda, the founder of the cathedral.

ESTHER.

I think, Mamma, that parchment and paper are the only two materials which you have not alluded to.

MRS. F.

Papyrus paper was used before parchment was known; the invention of the latter being attributed to a quarrel between Eumenes, King of Pergamus †, and the King of Egypt, in con-

\* Valery, vol. iii. p. 48. St. Boniface brought from England into Germany the Epistles of St. Peter written in letters of gold.

† The second of that name — died B. C. 159.

sequence of which the latter prohibited the exportation of papyrus, and Eumenes invented parchment as a substitute. But this story is now considered to be destitute of foundation, for parchment is mentioned as having been known long before the age of Ptolemies, and it is therefore probable that Eumenes only improved its manufacture.

FREDERICK.

Then comes vellum, I suppose, Aunt.

MRS. F.

It only being a finer kind of parchment, prepared from the skins of very young calves, I need not allude to it separately, except to tell you that MSS. exist of purple vellum.\* Paper now is the only material which we have not enumerated. Its earliest fabrication was, as you all know, of papyrus.

ESTHER.

From which comes our word *paper*.

MRS. F.

Papyrus paper we have already fully dis-

\* There is a manuscript of the Gospels of the sixth or seventh century at Brescia, which is one of the most ancient in purple vellum. — *Valery*, vol. i. p. 249.

ced. Silk paper has been made from the earliest times, by the Chinese, who, about the year A. D. 649, introduced the manufactory to Samarcand; and, when this city was conquered by the Saracens, an Arabian learned the art, and employing cotton instead of silk, made his paper at Mecca A. D. 706.\* From that city the manufacture spread over all the Saracen dominions, and was particularly carried on in Spain, where, in the twelfth century, the town of Sativa (now San Philipppo) in Valencia was celebrated for its paper, the manufacturers having substituted flax, which grew in abundance, to cotton, which was scarce and dear. Alphonso of Castile established a manufactory in the Christian states of Spain, whence it passed in the 14th century into Italy; and linen paper, such as we now employ, became of general use.† I have now given you a tolerably connected account of paper and its substitutes. With the history of printing you probably are already acquainted, and I therefore leave the subject, only observing, "that the most remarkable point in the history of this art, which has been destined to change the moral aspect of the globe, is not its so called discovery by Guttemberg or Koster, but

\* The Arabian MSS. are generally on silk paper.

† Simondi, *Lit. du Mid. de l'Europe*, vol. i. p. 72.

the great length of time which elapsed before it was put into use by the nations of Western Christendom ;” for we know that the Romans employed solid types or stamps, with raised letters, for the purpose of taking off short inscriptions, and the Visigoths in Spain printed the signs which they affixed to their deeds and charters. The silver letters of the “Codex Argenteus” are by some thought to have been produced by metal types.

HENRIETTA.

Pray, Aunt, what is that ?

MRS. F.

It is a copy of the translation of the Gospels by Ulphilas, who was bishop of the Mæso-Goths in the 4th century. This is the most ancient document extant of the Gothic tongue, from which all the modern northern languages are derived, and it is now preserved in the University of Upsal, having formed part of the booty at the taking of Prague in 1648.

FREDERICK.

But why is it called *Argenteus* ?

MRS. F.

Because the binding of the book, and its let-

ten, are of silver. The parchment, I should also tell you, is purple. But, as I mentioned before, metal types are by some supposed to have been used in it; and block printing, we know, was understood at an early period in China, where its operation must have been witnessed by Marco Polo, the celebrated Venetian traveller of the 13th century.

HENRIETTA.

I never heard of Marco Polo.

MRS. F.

Then I recommend you to read his life, because he is a character of no small literary importance. Marco Polo is no less celebrated for the singularity of his adventures and the vast extent of country through which he traversed, than for the effect produced by the relation of his travels upon the progress of navigation and commerce. The north and east of Asia, the islands of the East, and the extremity of Africa were then wholly unknown; and thus Marco Polo, and the learned cosmographers who first gave credit to his narrative, may be said to have prepared the way for the two greatest geographical discoveries of modern times—the Cape of Good Hope, and America. By Marco Polo's travels, the erroneous notions of the ancients

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disappeared; science became regenerated; and if, in the long series of ages, we search for those men who, by the greatness and influence of their discoveries, have most contributed to the progress of geography and a knowledge of the globe, the modest name of the Venetian traveller may be placed in the same line with those of Alexander the Great and Christopher Columbus.

ESTHER.

Were his travels believed at the time?

MRS. F.

His narrative was read with eagerness, but was considered, by many, to be such a tissue of falsehood and exaggeration, that the friends and relatives of Marco Polo entreated him, when on his death-bed, to retract or disavow the passages which the world regarded as fiction; but Marco Polo declared that, so far from having exaggerated the truth, he had not related half the wonders to which he had been eyewitness; but, like our own countryman Bruce, he could not gain credence for what subsequent travellers have proved to be fact.

FREDERICK.

I can't see why he was not believed?

MRS. F.

When we take the knowledge of the age into consideration, there was nothing extraordinary in the incredulity of the public; for the Tartars were, at that time, considered as savages scarcely possessing the human form: and, when Marco Polo spoke of a Tartar empire larger and more civilised than the whole of Europe, governed by an emperor, having a court and regular tribunals of justice,—when he spoke of China, its manners and institutions, so remote from those which were then known, of animals of new forms, and of natural phenomena so strange,—how could he expect, in an ignorant age, to gain credence for half the wonders which he recounted?\*

\* Walckenaer, in *Biographie Universelle*.

## CHAPTER III.

## THE FLOWER GARDEN.

MIMULUS MOSCHATUS. — CENTAUREA MOSCHATA. — MUSCARIA  
 PINNATIFIDA. — MUSK RAT. — GOAT MOTH. — ACANTHUS. —  
 CARTHAMUS TINCTORIUS. — ROUGE. — CROCUS SATIVUS. —  
 CARLINA ACAULIS. — ONOPORDUM ACANTHIUM. — AZALEA  
 PONTICA. — GEOGRAPHICAL DISTRIBUTION OF BEES. — HONEY  
 OF MADAGASCAR AND OF NARBONNE. — BODY OF ALEXANDER  
 THE GREAT. — GRAFTS. — APPLES AND FISH IN WAX. —  
 LEAF-CUTTING AND MASON BEE. — HUBER. — INSECTS ON  
 COMPOSITÆ. — DAHLIA. — ARBUTUS. — CAMELLIA. — CALMUC  
 TEA. — STEPPES OF ASIA.

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“Methinks I see great Dioclesian walk  
 In the Salonian garden's noble shade,  
 Which by his own imperial hands was made.  
 I see him smile, methinks, as he does talk  
 With the ambassadors, who come in vain  
 T' entice him to a throne again.  
 'If I, my friends,' said he, 'should to you show  
 All the delights which in these gardens grow,  
 'Tis likelier far that you with me should stay,  
 Than 'tis that you should carry me away :  
 And trust me not, my friends, if, every day,  
 I walk not here with more delight  
 Than ever, after the most happy fight,  
 In triumph to the capitol I rode,  
 To thank the gods, and to be thought almost myself a god.'”  
 COWLEY'S Garden.

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THE next day being fine, Mrs. Fortescue pro-  
 posed a visit to Mrs. Clifford.



"What a delightful smell of musk!" exclaimed Henrietta, as they passed by a bed of small yellow flowers.

MRS. CLIFFORD.

That is the *Mimulus moschatus*, which affords, I believe, the strongest instance of musk in the vegetable kingdom. I have seen a perfume distilled from this plant, which is nearly as powerful as the animal musk.

MRS. F.

But the Sweet Sultan (*Centaurea moschata*) emits also a strong musky smell; and this pretty little white flower, *Muscaria pinnatifida*, is likewise very powerful.

MRS. C.

I have a great dislike to the smell of musk; and, when I was in India, I used to be much annoyed by the musk rat, whose smell is so strong, that, if one of these animals passes over a bottle of wine, the subtile particles of the musk penetrate the cork, and impart so disagreeable a flavour to the wine, that it is impossible to drink it.

FREDERICK.

I once kept the caterpillar of a goat moth \*

\* *Cossus ligniperda*.

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for some time, and it smelt as strongly of musk as any of these flowers.

ESTHER.

How did you contrive to secure it, Frederick ; for the goat caterpillar will eat through a common deal box ?

FREDERICK.

My box was coated with tin, and bored with small holes to admit the air. I used to feed the caterpillar mostly upon apples, of which it would eat a great quantity in the course of the day. These caterpillars live, as you know, inside the trunks of willows and other trees ; and mine appeared to dislike the air so much, that, whenever I took the cover off the box, it would spin a web over itself by way of protection.\*

MRS. F.

The muscular powers†, the voracity, the long duration of this caterpillar, and all the interesting details of its history, are so fully described from the labours of Lyonnet and other naturalists, that you will have read almost every particular concerning it in the volumes upon In-

\* Fact.

† According to Lyonnet it has 4041 muscles.

sects published in the "Library of Entertaining Knowledge." — But here, Frederick, is a plant which you will be pleased to see, the *Acanthus*\*, so celebrated in your classic reading.

HENRIETTA.

Oh! you refer, Aunt, to the story of Callimachus, and the invention of the Corinthian capital?

MRS. F.

Virgil also makes mention of it: he describes the dress of Dido, which had originally belonged to Helen, as being embroidered with the *Acanthus*.†

ESTHER.

What a brilliant orange this flower is!

MRS. C.

That is the *Carthamus tinctorius*, the Safflower or Saffranum of commerce, which is cultivated chiefly in Spain and in the Levant. The flowers contain a yellow and a red colouring matter; — the latter only is used. *Rouge* is the red colouring matter, obtained by digesting the flowers in a solution of carbonate of soda, and adding lemon juice, which throws it down

\* *Acanthus mollis*.

† *Æneid*, b. i. l. 649.

in the form of a fine powder, which is dried and mixed with a portion of talc. *Carthamus* is likewise used to dye woollens and silks, and also is employed to adulterate the true saffron, which consists, as you all know, of the fragrant stigmas of *Crocus sativus*.

MRS. F.

Yes; at Saffron Walden, in Essex, where it was said to be introduced in the reign of Edward III., the meadows are purple, in the autumn, with the flowers of this *Crocus*, which is cultivated there solely for the saffron; and I have heard that the corporation of Walden bear three saffron plants in their arms.

MRS. C.

Here is a plant which you do not often see in the garden.

MRS. F.

Oh! *Carlina acaulis*, a plant I have constantly seen growing wild on the Continent; and in Sicily, its receptacle is eaten as we do in England that of the artichoke. But, while we are on the subject of thistles, allow me to point out to my little party that fine *Onopordum acanthium*, which, I believe, is generally cultivated as the true Scotch thistle.\*

\* Hooker.

ESTHER.

Here is the American part of the garden, which looked beautiful in the spring.

MRS. F.

I see, Mrs. Clifford, that you keep bees ; are you not afraid that they should gather the honey of your Azaleas and Kalmias ?

MRS. C.

I have never heard of any ill consequences attending their doing so.

MRS. F.

But most of that family \* are supposed to be noxious. In 1790, when there was an extensive mortality among those who had eaten the honey collected in the vicinity of Philadelphia, it was ascertained that the honey was chiefly extracted from the flowers of *Kalmia latifolia*, and, as you recollect, it is supposed that the honey which proved so fatal to the army of Xenophon was collected from the Azalea.

FREDERICK.

Do you mean, Aunt, in the famous retreat of the Ten Thousand, after the battle of Cunaxa? †

\* Rhodoraceæ.

† B. C. 401.

MRS. F.

Precisely so. Tournefort, who travelled in Asia Minor, ascertained that *Azalea pontica*, which grows plentifully about Trebizond and its vicinity, produces effects similar to those which Xenophon describes as having been experienced by those among his soldiers who ate of the honey of Trapezus \* ; and Tournefort brings in corroboration of his assertion the testimony of Father Lamberti, a missionary, who observes that the honey collected by the bees from a certain shrub (answering, by his description, to the *Azalea pontica*), which grows commonly in Colchis, is highly pernicious, and excites sickness, headaches, &c. He also adds, that the smell of the flower resembles that of the honeysuckle, but is much stronger.†

MARY.

Did many of Xenophon's army die ?

MRS. F.

None. Xenophon relates that those who ate of the honeycomb lost their senses, and were seized with sickness and giddiness. Those who had taken much, felt as if they had been intoxicated; those who had had more, like mad or

\* The ancient name of Trebizond.

† Milne's Botanical Dictionary.

dying persons. In this state, they laid down upon the ground: none of them died, but the next day they recovered their senses, and on the third or fourth, they were able to stand.\*

MRS. F.

I have seen people suffer very severely from eating honey in this country. It is a singular fact in the geographical distribution of insects, that the honey and wax of Europe, Asia, and Africa are all prepared by bees of the same genus with our common hive bee†; while in America the genus *Apis* is no where indigenous, but is replaced by two other genera‡, and in New Holland by one still more different.§

MRS. C.

The other day, I had a present made me of some green honey, which is much esteemed for its perfume, as well as for its other qualities; and is, I am told, collected by the bees of Madagascar on the mountains, from the heath which grows, in that country, to an enormous size.

MRS. F.

In Ireland, the honey collected from the

\* Anabasis, b. iv. chap. viii.

† Melipona and Trigona.

§ Lyell's Geology, vol. ii. p. 114

† *Apis*.

mountain heath is also highly esteemed ; but the Narbonne honey is said to derive its peculiar taste from the quantity of rosemary which grows in the neighbourhood.

FREDERICK.

The ancients used, sometimes, to put dead bodies into honey, in order to preserve them from putrefaction.

MRS. F.

Yes ; according to Statius, the body of Alexander the Great was so deposited. Honey was also poured upon the Tyrian purple, to keep it fresh ; and some, that had been thus preserved unimpaired for 200 years, was found at Susa by Alexander the Great.

MRS. C.

I have been told, by an eminent botanist \*, that the best mode of conveying grafts of trees, cuttings of vines, &c. to a distance, is to place them in a tin case or cylinder filled with honey. The honey hermetically excludes the air, and cuttings so preserved, will vegetate many months after they have been packed.

MRS. F.

Wax is still employed, in the East, to cover fish which they wish to transport to a distance ;

\* Professor Gussone.



and apples are thus sent from South to North Russia.\*

MARY.

Look, what a curious leaf this is ! It appears to have little round pieces cut out of it with a pair of scissors.

MRS. C.

It is the work of the little Upholsterer Bee†, a busy inmate of my garden. The leaves of the China roses seem peculiarly its favourite ; but I have found other serrated leaves, besides those of the roses, cut in the same way. There is an interesting description of the manner in which it pursues its occupation in the “ Library of Entertaining Knowledge‡;” but though so many of the leaves in my garden are thus cut, I have never been able to see the little animal at work, nor have I ever discovered one of its nests.

HENRIETTA.

How very wonderful that it should cut them so exactly !

MRS. C.

“ The little rose-leaf cutter, pursuing her work with the nicest mathematical art — using no artificial instruments to form her ovals and

\* Beckmann's History of Inventions, vol. ii. p. 51.

† *Megachile centuncularis* (Latreille).

‡ Insect Architecture.

her circles, knowing that the elastic property of the leaves will retain them in their position—making her nest of equal strength throughout by the most rational adjustment of each distinct part, — demands from us something more than mere wonder ; for such an exercise of instinctive ingenuity at once directs our admiration to the Great Contriver, who has so admirably proportioned her knowledge to her necessities.”\* One year a Mason Bee† made its nest in the lock of the garden door, and filled all the wards with her cells. I am very partial to bees, and have purchased some of the newly-invented hives, by means of which the honey may be taken without destroying the bees. By opening a valve in the top of the hive, a current of air is admitted, which causes the bees immediately to forsake the hive, and the honey can be taken without their suffering any injury.

MRS. F.

These hives must be, indeed, a source of great pleasure to every benevolent naturalist, for it seems a cruel fate to await these poor little industrious creatures at the close of their successful labours ; and so impossible have I found it to reconcile their destruction to my feelings,

\* Insect Architecture, p. 63.

† *Megachile muraria*.

that I have never kept bees myself, though the writings of Huber have so much interested me in their economy, that I should have liked to have watched them more closely.

ESTHER.

Was not Huber blind, Mamma?

MRS. F.

Yes, from an early age. Huber is a beautiful example of cheerfulness and resignation under the most afflicting trials; and the patience and sagacity with which, under such apparently invincible obstacles, he pursued the study of nature, is a fine lesson to us how perseverance and intelligence may arrive at the most brilliant results, in spite of every physical disadvantage.

FREDERICK.

Pray, Aunt, tell us more about Huber.

MRS. F.

Huber was a native of Geneva, and early began to cultivate his taste for literature and science; thus laying up a store of ideas and impressions for the pilgrimage of darkness he was called upon later to endure. At fifteen, his sight began to fail, and the oculists pronounced the probability of approaching blindness. Made-

moiselle Lullin and Huber were mutually attached to each other from the age of seventeen; and, determined not to abandon her friend in his misfortunes, this heroic young lady resolved to marry him as soon as she should attain her majority.\* Her married life realised the promise of her early devotion; and Madame Huber, during the forty years of happiness they were permitted to enjoy, was his secretary, his companion, the partner of his studies and of his pursuits. Indeed, such was her unwearied attention, so many ways did she find to gladden his darkened existence, that, as he feelingly observed in his declining years, — “While she lived, I never was conscious of the misfortune of being blind.”† We have seen the blind illustrious as poets and musicians, as philosophers and mathematicians‡; but it was reserved to Huber first to distinguish himself in the sciences of observation, and upon objects so minute as to be perceived with difficulty by even the most clear-sighted observers. The works of Réaumur and Bonnet § first directed his curiosity to the study

\* Then fixed at twenty-five.

† During the war, Madame Huber used to put her husband in possession of the movements of the armies by arranging squadrons of pins on a map, so as to represent the different bodies of troops.

‡ Homer, Milton, Salinas (Professor of Music at the University of Salamanca), Saunderson, Euler, &c.

§ With whom he was personally acquainted.

of bees, and the desire of verifying some of the facts in their history, led him to a series of observations on their economy.

## HENRIETTA.

But, Aunt, how could he make any observations when blind?

## MRS. F.

By employing the eyes of others. He had, then, an intelligent and devoted servant, François Burnens, whom he trained to the task; and such was the enthusiasm that Huber inspired in those around him, that Burnens would brave the fury of a whole hive, or seize a wasps' nest in spite of the stings of the horde of wasps who defended it, in order to arrive at some fact which his master was desirous of ascertaining. Huber's wife, and subsequently his son, assisted him also by their observations; and, by attentively listening to their recitals, Huber was enabled to form so clear an image of what they described, that, as he once gaily observed to Professor De Candolle, — "I am much more sure than you of what I relate, for you publish what your eyes alone have seen, whereas I take the medium between several witnesses:" a plausible mode of reasoning, perhaps, but happy was it for him

that religious resignation had taught him thus to view his infirmity.

ESTHER.

What were Huber's principal discoveries ?

MRS. F.

He determined the origin of the wax, and of the propolis ; he discovered how the bees prepared the former for their cells ; he assigned the part which each class of bees takes in the construction of the hive ; he described the battles between the queen bees ; studied the origin of the swarms, and first gave a detailed history of these flying colonies ; he proved the use of the antennæ in enabling the bees to distinguish each other ; he determined the influence of the size of the cell upon the size of the insect which issues from it ; and showed the ravages committed among the hives by the Death's-head Moth (*Sphinx atropos*). He also made many curious researches upon the respiration of bees, from which he discovered that these insects, by a peculiar movement of their wings, agitate the air so as to renew its vital properties and replenish the oxygen gas, which they consume like other animals. In short, so profound were his observations, and so just his conclusions, that since his death nothing material has been added to their his-

try, and naturalists blessed with the power of vision have had no important observations to join to those of their blind but persevering colleague.

HENRIETTA.

When did Huber die?

MRS. F.

In December, 1831, at the age of eighty-one, in the possession of all his faculties, cheerful and resigned to the last. On the 20th of that month he wrote to a friend — "Resignation and serenity are blessings which have not been refused to me." Two days afterwards, he expired without pain in the arms of his daughter. Such was Huber: religious, wise, and good; amiable and animated in conversation; delighting in the society of young persons; firmly attached to his friends, whose kindness and affection offered him a compensation to his misfortune which he had the good sense to enjoy and to appreciate. He never was the first to speak of his calamity; he never complained, for he considered resignation and cheerfulness as his first duties. The sagacity of his researches places him in the highest rank among naturalists; and though he confined himself to the special observation of one insect, yet his brilliant imagination would often indulge itself in general

ideas, and he loved to admire the Great Author of Nature in the harmony of His works. In short, in whatever point of view we consider the character of this amiable man, he is highly deserving our admiration. His example may teach us to turn every dispensation of Providence to our good, and shows us how, by perseverance and patience in well doing, we may attain the most brilliant results, under obstacles the most discouraging, and calamities the most depressing.\* It shows us how, even though deprived of the most valuable of our senses, what resources we have still within ourselves, and leads us to bestow more attention upon the cultivation of those faculties which are left to us, so as to render them the more efficient by the greater call upon them for exertion.†

MRS. C.

I must join my thanks, Mrs. Fortescue, to those of your young people for this account of

\* The discovery by Captain Hall of the stingless bees at Tampico excited his interest, and nothing could exceed his joy at a friend procuring him a hive of them. This was his last labour in behalf of his old friends, to whom he had directed the researches of his life, and to whom he owed his celebrity, and, in a great measure, his happiness. The above account is mostly taken from De Candolle's "Notice" upon the life and writings of Huber.

† The memory, one of the highest faculties of the mind, is always most powerful in blind persons.



Huber, whose character I never before was sufficiently acquainted with. Milton's touching lines upon his blindness must be so familiar to you all, that we will ask Esther to repeat them.\*

Esther recited them with much taste and feeling.

HENRIETTA.

But, not yet to forsake our favourite bees, look what numbers of them there are on that *Coriopsis*.

MRS. C.

Yes: do not you know that all the *Compositæ* (or Composite flowers) are particular favourites of insects? † The Dahlias, when in bloom, are always covered with insects, and especially with bees, which you often see upon the flower, either so laden or so stupified as to be almost unable to move.

HENRIETTA.

Pray, how do you pronounce the name of that flower?

MRS. C.

Usage admits of our saying *Dalia*; but, independent of that pronunciation confusing these

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\* " With the year  
Seasons return; but not to me returns  
Day, or the sweet approach of even or morn," &c.

† Sir J. Smith.

plants with the papilionaceous genus *Dalea*, it also is radically wrong, for the flower is named after Andrew Dahl, a Swedish botanist, who first brought it from Mexico, and consequently it should be called *Dahlia* after him.

FREDERICK.

*Arbutus*, too, is generally pronounced wrong; for, according to Virgil\*, it should have the accent on the first syllable, the *u* of the second syllable being short.

MRS. C.

In the same manner, *Camellia* should have both *l*'s pronounced; the plants being so called after Joseph *Kamel*, a Jesuit, whose name is usually spelt *Camellus*.

ESTHER.

Some one was telling me, the other day, that Camellias are used by the Chinese for flavouring their tea.

MRS. C.

So I have understood: the leaves of *Camellia Japonica* and *Sasanqua* are often employed in China and Japan instead of those of the true tea; and many of the different species of the genus

\* Eclogues, liii. 82. and vii. 46.

*Thea* are used, almost indifferently the one for the other, by the inhabitants of China, Japan, and Cochin-China.

ESTHER.

Are the Camellias, then, a species of tea?

MRS. C.

Yes: according to De Candolle, they all form one order, *Camelliæ* \*, and, being so nearly allied, they possess, though in different degrees, the same properties; but the peculiar flavour of some of the kinds of tea is imparted to them by the tea leaves being placed in alternate layers with the flowers of either *Camellia sesanqua* or of *Olea fragrans*†, a plant which you will see growing in my hothouse. With the preparation of tea as we receive it here, you all, doubtless, are acquainted; but you probably are not aware how the Calmucs prepare theirs. “It is imported from China to Siberia, and consists of the coarse leaves and stalks of the plant, which are formed into cakes sixteen inches long, eight inches broad, and more than an inch thick. A portion of this is cut off with a knife, and boiled with butter and fat from the tails of their

\* *Camellia thea* (Bohea tea), *Camellia viridis* (green tea).

† De Candolle.

sheep ; a little salt is added, and sometimes milk. Before these last ingredients are put into the kettle the settlement is taken out with a bag and an iron hook (a good deal like a fish-hook), and these leaves are added on the next occasion to the fresh tea. When all is ready, the tea is ladled out of the kettle with a wooden spoon, and served in the common wooden bowls or cups which the Calmucs use to drink out of.” \*

MARY.

In what part of Asia do the Calmucs live ?

MRS. F.

The inhabitants of the vast plains, or *steppes*, which extend northward from the Black Sea and Mount Caucasus, on both sides of the Volga, are known under the name of Calmucs. They belong to the Mongolian race, are divided into five *hordes* (in the Mogul language *orda*), each governed by its own khan or chief. Their wealth consists in their camels, horses, oxen, sheep and goats ; these supply all their wants, or afford them the means of satisfying them. They live in tents ; 20,000 tents or families of Calmucs inhabiting the government of Astrachan. In the winter, they drive their herds

\* Zwick and Schill's Journey to Calmuc-Tartary, p. 99.

from the steppes into regions better furnished with water.

ESTHER.

What dreary places these steppes must be !

MRS. F.

So, indeed, they are. The steppes of Asia extend over more than 2000 leagues, and are the most vast and elevated in the world. Those in the government of Astrachan are among the most desert parts of the Russian empire. The soil consists of a yellow clay, without stones, and abundantly impregnated with various salts. Vegetation is extremely scanty, consisting chiefly of wormwood, interspersed with tufts of grass, which never entirely cover the ground, or form a uniform turf, the yellow clay being seen between. Here and there are more fertile spots, covered with saline plants, or adorned with the brilliant flowers of the Iris and the Tulip.

ESTHER.

Is the heat very great there

MRS. F.

In the southerly steppes the thermometer often remains, for weeks together, at 30 degrees of Reaumur \*, and not a single refreshing cloud

\* See page 102.

appears in the heavens : while, on the other hand, the cold in winter is intense, the thermometer being then as many degrees below the freezing point ; and this is felt the more because no mountains intervene to keep off the cold air from the east, which comes from the lofty, ice-covered Mongolia in an irresistible stream.

ESTHER.

Do many animals inhabit these deserts ?

MRS. F.

Wild horses, antelopes, foxes, and wolves are its chief occupants. Serpents and lizards are very common, and so is the locust, which devastates whole provinces. Scorpions are local, but the tarantula, and the still more poisonous scorpion spider, which the Calmucs call the black widow, are every where to be met with, and to be dreaded.

MARY.

Are there steppes in any other part of the world ?

MRS. F.

Yes, in all ; and, if you will remind me, another time, I will give you some account of them. At present, we must direct our attention to the flowers around us ; and let us follow Mrs. Clifford into the hot-house.

## CHAPTER IV.

## THE HOT-HOUSE.

BAUHINIA. — IPOMCEA COCCINEA AND QUAMOCLIT. — HIBISCUS  
 ROSA-SINENSIS. — HIBISCUS ESCULENTUS. — MALVACEÆ. —  
 COTTON. — ILLICIAM FLORIDANUM AND ANISATUM. — ANISETTE.  
 — MARASCHINO. — MERISES. — MAYDUKE. — BIGARREAU. —  
 KIRSCHENWASSER. — WALNUTS. — VANILLA. — VIOLET SHER-  
 NET. — BERTOLA'S LINES TO THE VIOLET — ROSE APPLE. —  
 INDIAN RUBBER. — BANYAN TREE. — MILTON, SOUTHEY, AND  
 MOORE'S LINES. — DRAGON TREE OF OROTAVA. — BAOBAB. —  
 COCOA NUT. — MONKIES TRAINED TO FETCH THE FRUIT. —  
 SEYCHELLES ISLAND COCOA NUT. — ALBUMEN. — ORANGE  
 TREES AT SORRENTO.

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“ How exquisitely sweet  
 This rich display of flowers !  
 This airy wild of fragrance,  
 So lovely to the eye,  
 And to the sense so sweet ! ”

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HENRIETTA.

WHAT a curious saddle-shaped leaf this creeper  
 has !

MRS. CLIFFORD.

Yes; it is divided into two singular, oval lobes.  
 The plant is the *Bauhinia*, a climber of South  
 America, in the woods of which, it twines round

the highest trees, and the monkies use it for ladders. On the borders of the Orinoco, its leafless branches are often forty feet long. Sometimes they fall perpendicularly from the elevated top of the Mahogany\* ; at others, they stretch themselves diagonally from one tree to another, like the ropes of a ship, and the tiger-cats run up and down them with wonderful agility. † Here, too, is another beautiful creeper, the delicate pinnated leaves of which, give it the most feather-like appearance, and its brilliant crimson flowers far surpass its kindred and more hardy species, the *Ipomœa coccinea*, a common garden annual. This is the *Ipomœa quamoclit*, and its fleshy root is converted by the Indians into a kind of snuff. ‡

MRS. F.

Look at this beautiful scarlet Hibiscus.

MRS. C.

That is *Hibiscus rosa sinensis*, or daily Rose ; the Chinese employ it to blacken their hair and eyebrows, and also the leather of their shoes. § For the latter purpose, the Malays at Singapore (in the employ of Europeans) also use

\* *Swietenia Mahoganî* De Candolle.

† Humboldt, *Tableaux de la Nature*.

‡ De Candolle.

§ Ibid.



it, by rubbing the shoes with the petals of the flower, which contain a quantity of purplish black astringent juice. It possesses, certainly, the advantage over our blacking, of not coming off, and thus preventing the white dresses of the Easterns from being sullied by the shoes. The Europeans have given it, in consequence, the name of *shoe-flower*. Another species of *Hibiscus* (*H. esculentus*), the Okro plant, is much eaten in tropical countries; and in Africa, the flowers of many species of this beautiful tribe are used by the women to decorate their hair.\*

ESTHER.

They are of the family of *Malvaceæ*, are they not?

MRS. C.

Yes; and to the same family the Cotton tree belongs. The seeds of many genera of this family are surrounded by woolly or silky filaments; those of the cotton, when viewed with a microscope, are covered with small teeth or notches, which render them so easy to weave, and which explains how the textures made from them irritate or scratch the skin.

\* *Stories of Strange Lands*, by Mrs. R. Lee.

## HENRIETTA.

That is the reason, I suppose, that so many persons do not like wearing calico, and that it is never used for dressing wounds?

## MRS. F.

Precisely so. In the vegetable, as well as in the animal kingdom, we find that those hairs which, when seen by the microscope, appeared to be toothed, are alone capable of felting.\* Here is the species which furnishes the Nankeen cotton †; and this is the common species. ‡

## ESTHER.

Pray, Mrs. Clifford, what is this pretty star-shaped crimson flower?

## MRS. C.

*Illicium floridanum*. Another species of the same genus, *Illicium anisatum*, is a plant much used by the Chinese. Its smell is sweet and aromatic; its taste a little bitter. They employ it to burn in their temples, and the Europeans use it to flavour several of their liqueurs, — among others, the celebrated *Anisette de Bordeaux*. §

\* De Candolle.

† *G. herbaceum*.

‡ *Gossipium religiosum*.

§ De Candolle.

HENRIETTA.

And what is *Maraschino* flavoured with?

MRS. F.

With a small black cherry, which is generally denominated in England, among the gardeners, the *Guisnes* cherry, they having been probably imported from thence. By the country people, they are often termed *merries*, which last name is a corruption of their French appellation, *merises*.

MRS. C.

In the same manner that *Mayduke* is derived from the *Pays de Medoc*, a part of France where that variety of cherry abounds; and *bigarroo* is a corruption of *bigarreau*, an epithet given to the cherry, from its beautiful red-and-white mottled appearance, — but, I am interrupting you, Mrs. Fortescue.

MRS. F.

This Guisnes cherry, or *merise*, grows in Dalmatia, where it is called *marasca*\*, whence the liqueur derives its name. It is chiefly manufactured at the little town of Zara, so celebrated

\* An abbreviation of *amarasca*, from its bitter flavour.

in modern history \*, from which place, it is sent to Venice and Trieste, and thence to every part of the world. But this is not the only liqueur made from cherries; the German *kirschenwasser* (the word only meaning cherry-water) is distilled from the cherry.†

ESTHER.

Where is it made?

MRS. F.

The best is manufactured in the Black Forest, so celebrated as the scene of many a German legend. In all that part of Germany, cherries are most abundant, and are sold at the most trifling price. With the Germans, stewed cherries are a favourite dish, and they eat them with their roasted meat.

ESTHER.

Are not walnuts, also, very common in Germany?

MRS. F.

Yes; although the tree is not indigenous to

\* For its siege, in 1201, by the crusading princes, and

————— “blind old Dandolo!

Th’ octogenarian chief, Byzantium’s conquering foe.”

† *Cerasus avium*.

Europe, but is supposed to have been introduced from Persia and the borders of the Caspian Sea.\* The Germans cultivate them chiefly for the oil which their nuts afford.

MRS. C.

With us they flourish mostly in Surrey, which county almost entirely supplies the London market with this fruit. But here is also a plant, the perfume of which you are well acquainted with, the *Vanilla aromatica*, a creeping parasitical plant, which fixes its roots in the trunks of trees in tropical climates. You see, I keep mine in cocoa-nut shells filled with moss, which answers the same purpose. It does not produce fruit in this country; but I have in the house one of its long, cylindrical, fleshy pods, which is so much valued for its delicate and delicious aroma, and with which liqueurs, ices, &c. are so often flavoured.

ESTHER.

I have read that the sherbet of the Turks is prepared from the flowers of the violet.†

\* Voyage dans l'Empire de Flore.

† Hasselquist and Tavernier. — "The violet sherbets were hastily handed round." MOORE.

MRS. C.

Yes; that which is most esteemed, and which is drunk by the Grand Seigneur himself, is made of violets and sugar.

MRS. F.

Among the numerous lines written upon this flower, which really rivals the rose in the admiration with which it has inspired poets, is a pretty sonnet of the Italian poet Bertola, which Esther will repeat to you, Mrs. Clifford; but, I fear we must translate it for the rest of our party, except for Henrietta, who understands Italian.

Esther repeated the following verses to

## LA VIOLA MAMMOLA.

- “ O bella mammola tutta modesta,  
Il prima zefiro d' April ti desta :  
Vivi rinchiusa, ma in lontananza  
La tua ti accusa dolce fragranza :  
O bella mammola, mammola bella,  
Sii tu l' imagine d'ogni donzella !
- “ Chi brama coglierti, se avanza il piede,  
Già sta per premerti, ne ancor ti vede :  
Pure e gentili le tue fogliette  
Fra l' erbe vili giaccion neglette.  
O bella, &c.
- “ Quando col crescere di primavera,  
Dei fior più nobile cresce la schiera,  
Ch' apron più vaga più altera foglia :  
Ti stai tu paga che niun ti coglia.  
O bella, &c.

" Madre, consolati se la tua figlia  
 A bella mammola tutta somiglia :  
 Nè mai lagnarti se d'arti è senza ;  
 Che far dell' arti dov' è innocenza ? "

MRS. C.

Thank you, Esther. I never heard them before.

MRS. B.

Here is a tropical plant, which I have seen in full fruit in Italy, where it is also used for flavouring the *sorbetti* (or sherbet), the *Eugenia Jambos*, or Rose apple, of the West Indies. My tree produces fruit constantly. Taste it: the flavour, as well as the smell, precisely resembles the otto of roses; and the tree, laden with its round yellow fruit, has a very pretty effect; but the dryness of the fruit renders it unfit for eating, though it is sometimes used to feed pigs, who devour it greedily. This, too, is a tree which will be interesting to you, as it is one of those which afford the Indian rubber.

HENRIETTA.

Is there more than one tree which produces it?

MRS. C.

Yes, several. They are mostly included in the families *Euphorbiaceæ*, *Urticeæ*, *Apocynææ*,

and *Campanulaceæ*.\* This is the *Ficus elastica*; prick either the bark or the leaf, and you will see a white, glutinous liquid issue from it, which hardens by exposure to the air. But here is another species of *Ficus*, which you know well by name, but of which this is but a miniature representation; the celebrated Banyan tree † of the East Indies.

## ESTHER.

I remember Milton's description of it very well.‡

"The fig-tree, not that kind for fruit renown'd,  
But such as at this day to Indians known  
In Malabar or Deccan, spreads her arms  
Branching so broad and long, that in the ground  
The bended twigs take root, and daughters grow  
About the mother tree, a pillar'd shade  
High overarch'd, and echoing walks between;  
There oft the Indian herdsman, shunning heat,  
Shelters in cool, and tends his pasturing herds  
At loop-holes cut through thickest shade."

## MRS. C.

It is given quite with the pen of a naturalist.

## MRS. F.

Southey also describes it minutely in his  
"Curse of Kehama:" —

\* The Indian rubber of commerce comes from *Hevea Cahuchu*, *Lobelia Caoutcha*, *Castilloa elastica*, *Ficus* and *Urceola elastica*, &c. (Humboldt, *Voyage aux Régions Équinoxiales*, vol. vii. p. 330.)

† *Ficus Indica*.



" 'Twas a fair scene wherein they stood,  
A green and sunny glade amid the wood,  
And in the midst an aged Banian grew.  
    It was a goodly sight to see  
    That venerable tree ;  
For o'er the lawn, irregularly spread,  
Fifty straight columns propt its lofty head,  
    And many a long depending shoot  
    Seeking to strike its root,  
Straight, like a plummet, grew towards the ground.  
    Some on the lower boughs, which crost their way,  
Fixing their bearded fibres, round and round,  
With many a ring and wild contortion wound ;  
    Some to the passing winds, at times, with sway  
    Of gentle motion swung ;  
Others of younger growth, unmoved, were hung,  
    Like stone-drops from the cavern's fretted height.  
    Beneath was smooth and fair to sight,  
Nor weeds nor briers deform'd the natural floor ;  
And through the leafy cope which bower'd it o'er  
    Came gleams of chequer'd light.  
So like a temple did it seem, that there  
A pious heart's first impulse would be prayer."

MRS. C.

And, if I do not fatigue you with quotations,  
I should like to repeat some beautiful lines of  
Moore to his Mother, in which he alludes to  
the Banyan : —

They tell us of an Indian tree  
    Which, howsoe'er the sun and sky  
May tempt its boughs to wander free,  
    And shoot and blossom wide and high,

Far better loves to bend its arms  
 Downwards again to that dear earth  
 From which the life, that fills and warms  
 Its grateful being, first had birth.  
 'Tis thus, though woo'd by flattering friends,  
 And fed with fame (if fame it be),  
 This heart, my own dear mother, bends,  
 With love's true instinct, back to thee !

MRS. F.

Thank you ; the simile is beautiful.

FREDERICK.

What is this very tall plant ?

MRS. C.

That is the Dragon tree (*Dracæna draco*), one of the most common of the tropical trees. Its beautiful head of green leaves makes it appear to enjoy a perpetual spring. Among the people of Hawaii or Owyhee, it is the emblem of peace.\* The tree attains such an immense size, that fishing boats have been made out of its trunk.† Pigs are fed upon its fruit: but, if you wish to read an interesting account of this tree, I must refer you to Humboldt's "Personal Narrative" for a description of the Dragon tree of Orotava.

\* Beechey's Voyage.

† Bowdich's "Madeira."

FREDERICK.

Pray, where is Orotava?

MRS. C.

It is one of the islands of the Canaries, and on it, is a gigantic Dragon tree, which appears to have existed there for centuries; for tradition asserts, that it was of the same diameter when the island was conquered in the 15th century as it is at present.

ESTHER.

And what is that?

MRS. C.

Sixteen feet. Its height is now from 50 to 60 feet, the circumference near the root 45 feet; and what renders it the more singular that this tree should have attained so enormous a size is, that it is not indigenous: the East Indies is its true country, and it is no where found on the continent of Africa. Those, therefore, which are growing in the Canaries, Madeira, and Porto Santo, prove, from their age, that, at some very remote period, the inhabitants must have had intercourse with other people originally from Asia.\*

MRS. F.

The *Dracæna*, with the Baobab, are pro-

\* Humboldt's Voyage, vol. i. p. 252.

bably among the oldest inhabitants of our planet. I think I see a small plant here of the latter, which I must point out to my little party, as it is one of the most interesting of the tropical trees.

ESTHER.

Is that the same as the Monkey Bread tree?

MRS. F.

Yes. It is also called the Ethiopian Sour Gourd\*: its botanical name is *Adansonia digitata*.

ESTHER.

Where is it a native of?

MRS. F.

The natural territory of the Baobab is that part of Western Africa which lies between the Senegal and the Gambia; and it is to the verdant appearance given by these trees that Cape Verd owes its name. The tree belongs to the natural order of *Malvaceæ* (or the Mallow tribe). Its flowers are about 4 inches long and 6 in diameter. Being of a brilliant white, and pendent from long stalks, they form a beautiful contrast to the dark green of the leaves. They close at night; and it is the custom of the Africans to assemble round the Baobab at the ap-

\* *Kouka* in the Soudan, according to Major Denham.

proach of day, to watch the opening of its flowers, greeting them with the salutation of "Good day, beautiful lady!" The leaves, as the specific name implies, are digitate or finger-shaped, and are divided into five lobes: when young, they are employed by the natives to flavour their *kouskous*, and for many other culinary purposes. This is one of the few African trees (if not the only one) which loses all its leaves at the approach of the rainy season, when its long, bare, rude, irregular, hoary branches have a most grotesque effect, towering above all the other trees in the forest, the fruit still pendent from it, in long, twisted stalks, varying from 1 to 2 feet in length. Its bark is of a whitish hue. The fruit is about 18 inches in circumference, in the form of a double cone, covered with a rind which resembles dark green velvet. It is divided into 8 or 10 cells, each of which is filled with a buff-coloured, farinaceous, pulpy substance, of an acid and agreeable taste. In some places, it forms a principal article of food, and the juice expressed from it is used as a cooling drink in fevers. The fruit is consequently an article of commerce, and is conveyed as far as Morocco and Egypt.

MRS. C.

Is the wood of the Baobab of any use?

MRS. F.

Of none. It is fibrous and soft, and is even unfit for burning. The middle is filled with a large proportion of pith, the decay of which occasions the great caverns so frequently found in these trees. Within these hollow trunks are suspended the bodies of those who are refused the rites of burial, and, in them, they become mummies, perfectly dry and well preserved, without any artificial preparation. The Baobabs grow in sandy soils; and their lateral roots, though often 100 feet in length, would of themselves be insufficient to enable the tree to withstand the violence of the wind, had not Providence given them also a pivot root, formed by a prolongation of the trunk in a vertical direction. Thus admirably defended, the Baobab resists the fury of the African tornadoes, and, undisturbed by the war of elements, remains fixed in its position, the oldest organic monument of our planet.

MRS. C.

I think I have understood that it is not a very lofty tree?

MRS. F.

No; its elevation is by no means proportionate to its breadth. Adanson says they are from 10

to 12 feet high, and 77 in circumference; their roots 110 feet long. Humboldt states them to be 12 feet high and 30 feet in diameter; and other travellers have assigned them even greater dimensions. The largest, I believe, on record is that in the valley of the two Gagnacks.

HENRIETTA.

Where is that, Aunt?

MRS. F.

Between St. Louis and Goree. The tree, which was 104 feet in circumference, was situated a few paces from the village; and the assemblies of the people were always held in the enormous cavern formed in its trunk, which cavern was 20 feet high, and 21 in diameter. The form presented by the tree was that of a beautiful arch, flat and elliptical at top, and supported by a column 24 feet high; for it was at this elevation that the principal branches proceeded, and extended round the tree in a horizontal direction to the distance of 50 feet.

MRS. C.

But, with regard to its age, how have they made those calculations which give it an existence coeval with the Deluge?

MRS. F.

By means of two trees which are in the Isles de la Madeleine, and which have their bark inscribed with Dutch names, bearing the date of 1449. Supposing these characters to have been engraved in the infancy of the tree, and comparing them with their dimensions when Adanson saw them, he endeavoured to form a ratio of the progressive increase of the Baobab, from which he calculated that a tree of 30 feet in diameter must be 5150 years old, and must consequently have survived the Deluge; but, when we hear of such extraordinary calculations as this, and that of a modern botanist\*, who gives even a greater age to the Deciduous Cypress†, we must suspect there is some great error in the data upon which they have formed such extravagant conclusions.‡

MRS. C.

I am sure, Mrs. Fortescue, that we are very much obliged to you for this very interesting account of the Baobab, which will much enhance the pleasure I have in watching my pigmy specimen. § Here is the Cocoa-nut tree (*Cocos*

\* M. Alphonse De Candolle. ‡ Lindley.

† *Taxodium distichum*.

§ *Tableaux de la Nature*. Humboldt's Personal Narrative. Golberry's Africa. Hooker in Botanical Magazine, vol. lv. &c. &c.



*macifera*), which, in its native country, attains 70 or 80 feet in height. It does not begin to bear fruit until the fourth year, even in a damp and fertile soil; but in barren ground, not until the tenth year of its age.

MRS. F.

Does not the Cocoa-nut prefer salt to fresh water?

MRS. C.

Yes; it always grows best near the sea, and when planted inland, the cultivators throw half a bushel of salt in the hole made to receive the nut. It is not a long-lived tree, its duration seldom exceeding eighty to a hundred years; and it only bears abundantly till the age of thirty, when the crops gradually diminish.

ESTHER.

How many nuts will a tree yield?

MRS. C.

On an average, about a hundred.\* Animals have often been trained to fetch down the Cocoa-nut and other fruits for their masters. The orang-outang has been tamed by the savages of Borneo, and made to climb lofty trees to bring

\* Humboldt's Personal Narrative, vol. iii.

down the fruit. But he is said to yield his masters an unwilling obedience, and to be held in subjection only by severe discipline. One of the baboons of Sumatra (*Simia carpolegus*) appears to be more docile, and is frequently trained by the inhabitants to ascend trees for the purpose of gathering cocoa-nuts, a service in which this animal is very expert. He selects, says Sir Stamford Raffles, the ripe nuts with great judgment, and pulls no more than he is ordered. The capuchin and cacajao monkies are, according to De Humboldt, taught to ascend trees in the same manner, and to throw down fruit, on the banks of the Lower Orinoco.\*

HENRIETTA.

What is this strange-looking nut which is lying down here?

MRS. C.

It is the celebrated *Coco de mer*, or Cocoa-nut of the Seychelles Islands.

MRS. F.

The nut, I conclude, to which so many fabulous origins were assigned; but I am sure that Mrs. Clifford will kindly give us a more detailed account of it.

\* Hooker in Botanical Magazine, vol. liv., from which this account is taken.

MRS. C.

With pleasure. Until the discovery in 1748 of the only spot in the world where these nuts grow, they were solely known from having been found floating on the surface of the sea, in the Indian Ocean, and near the Maldives, whence was derived their French name of *Coco des Maldives*. They have also received other appellations, such as Double Cocoa-nut, *Coco de mer*, *Coco de Salomon*, and *Nux Medica*.\* The nut being only found in this manner (always destitute of its husk) gave rise to many fabulous stories among the Malay and Chinese sailors ; such as, that it was borne by a tree deep under water, which was similiar to the cocoa-nut tree, and was visible in placid bays upon the coast of Sumatra, &c., but that if they sought to dive after the tree, it instantly disappeared. The negro priests declared it to grow near the island of Java, with its leaves and branches rising above the water, in which a monstrous bird or griffin had its habitation, whence it used to sally forth nightly to tear to pieces with its beak elephants, rhinoceri, &c., whose flesh it carried to its nest : furthermore, they avouched that ships were attracted by the waves which surround this tree, and there retained, the mariners falling

\* *Lodoicea Sechellarum* (Labillardière and Sprengel).

a prey to this savage bird ; so that the inhabitants of the Indian Archipelago always carefully avoid that spot. With such and many more strange ideas respecting its place of growth and history, it is not wonderful that this nut should have been highly prized, and in the Maldivian Islands it was death to any man to possess it ; all that were found, became the immediate property of the king, who sold them at a very high price, and offered them as the most precious of regal gifts. Their value was estimated at from sixty to a hundred and twenty crowns ; but those which measured as much in breadth as in length were the most esteemed, and those which attained a foot in diameter were sold for a hundred and fifty crowns. Nay, some kings have been so greedy of obtaining these nuts, as to have given a loaded ship for a single fruit.

ESTHER.

What use did they make of them ?

MRS. C.

The Chinese, as well as the natives of the Indian Archipelago, considered them as an antidote to all poisons, and as a preservative against apoplexy, paralysis, &c. The principal virtue was supposed to reside in the meat or albumen which lines the nut.

ESTHER.

I beg your pardon for interrupting you, but what is the albumen?

MRS. C.

It is "the substance which lies between the infant plant and the outer integument of a seed. It is usually wholesome, and may be eaten in the most dangerous tribes (as *Euphorbiaceæ*); while in many, it forms an article of food (as in wheat, and the other Cerealia, the Cocoa-nut, &c.)\* But to return to the subject. The *albumen* was triturated with water in vessels of porphyry, and mingled with coral, ebony, and stag's horn, and then all drunk together.

HENRIETTA.

Again, I fear, I must interrupt you; but I do not know the meaning of the word triturated.

MRS. C.

It is the process of reducing any substance to a powder on stone, by rubbing it with a muller, in the same manner that colours are ground.

HENRIETTA.

Thank you.

MRS. C.

The great men of the Maldivian Islands

\* Lindley's First Principles of Botany.

formed of the shell precious vessels to hold their tobacco, betel, &c., believing that they could never be contaminated by anything noxious. The discovery of the Seychelles Islands, and the knowledge thence derived that these nuts grow upon trees, as other cocoa-nuts, soon reduced the value of this commodity; and now, probably, by the Indians as well as by the Europeans, it is only sought as a matter of curiosity or for domestic purposes.

ESTHER.

Where are the Seychelles Islands?

MRS. C.

The Seychelles, or Mahé Islands, as they are sometimes called, lie to the north-east of Madagascar. It is in this group only, that the palm is found, and, even among them, in no others than the Isle of Praslin and Curieuse, and Round Island. These are within half a mile of each other, mountainous and rocky, and the soil poor. The common cocoa-nut occupies the sea-coast, but all other parts are, or have been, entirely covered with *Cocos de Mer*.

HENRIETTA.

Is it a handsome palm?

MRS. C.

Yes, remarkably so; its ordinary height is from fifty to sixty feet, but it sometimes attains a hundred, scarcely differing in size to the very top, where it is crowned with a tuft of from twelve to twenty leaves, of a bright yellow green, about eight to ten feet long, and five to six feet wide, but some have been measured as large as twenty feet. Twelve months elapse before the fruits are fully ripe, and they have been known to hang three years on the tree before falling on the ground.

MRS. F.

That is like the oranges at Sorrento, near Naples, which hang three years upon the trees.

MRS. C.

A nut remains a year in the ground before it germinates, and a tree is twenty to thirty years old before it bears fruit. A tree produces from twenty to thirty nuts. These nuts are, as you see, about a foot long, almost black, and of a hard woody texture. A new leaf is formed on the tree annually, and, on falling away at the end of the year, it leaves a scar or ring. From these it is estimated that a tree takes 130 years to attain its full development. The crown of the trunk, in the middle of the leaves, is eaten,

as in that of the true Cabbage Palm (*Areca oleracea*), but is less delicate, and slightly bitter; it is often preserved in vinegar. The trunk is used for palisades, &c.; the foliage, to thatch the roofs of houses, and even for walls. With a hundred leaves, a commodious dwelling may be constructed, including even the partitions, doors, and windows. In the Isle of Praslin, most of the cabins and warehouses are thus made. The down which is attached to the young leaves, serves for filling mattresses and pillows. The ribs of the leaves and fibres of the petiole (or leaf-stalk) are converted into baskets and brooms. The young foliage affords an excellent material for hats; for which purpose the unexpanded leaves only, are taken, dried in the sun, and cut into thin longitudinal stripes, which are then plaited, and scarcely any other covering for the head is worn by the inhabitants of the Seychelles. Out of the nut are made vessels of different forms and uses. When preserved whole, and perforated in one or two places, the shell serves to carry water, and two of them are suspended from opposite ends of a stick. Some of these nuts hold six to eight pints. If divided in two, between the lobes, each portion serves, according to the size and shape, for dishes, plates, or drinking cups, these being valuable from their great



strength and durability. This kind of utensil bears in the Seychelles Islands the name of *Vaisselle de l'Isle Praslin* ; and such is the estimation in which these nuts are held by the negroes and poor people of other islands, that the sailors always try to obtain them and make them part of the cargo of their vessels. Amongst other articles, shaving dishes—black, beautifully polished, carved, and set in silver—are made from them.\*

MRS. F.

Let me, my dear Mrs. Clifford, thank you, in the name of my party, as well as for myself, for this very interesting account. But, I think, we must go home.

MRS. C.

You had better first rest yourselves in the house.

To this they willingly assented, and left the garden.

\* Hooker, in *Botanical Magazine*, vol. liv.

## CHAPTER V.

## ON GLASS.

FAHRENHEIT AND REAUMUR. — GLASS FIRE SCREEN. — ICE WINDOWS. — GLASS OF POMPEII. — VENETIAN GLASS. — GLASS WINDOWS IN ENGLAND. — DISCOVERY OF GLASS. — SAND. — BARONS' CAVE AT REIGATE. — BARILLA. — KELP. — FUCI, USES OF. — FUCUS NATANS. — WRACK. — FUCUS TENAX. — LAMINARIE. — FUCUS CRISPUS. — DULSE. — LAVER. — GELIDIUM. — CHINESE SWALLOW. — SOY. — RED SNOW.

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## HENRIETTA.

I DID not like to interrupt you, aunt, in the garden; but when you were telling us about the steppes of Asia, you talked of the heat being at 30° of Reaumur.\* How high is that in our thermometer?

## MRS. F.

Ours, and indeed most of the thermometers used in England, are graduated by Fahrenheit's scale, whereas on the Continent, Réaumur's is more frequently employed. The difference is

\* See page 73.

this, that in Fahrenheit's scale, the freezing point is placed at 32 degrees, whereas in Réaumur's it is at zero. The degrees also of Fahrenheit's are less than Réaumur's in the proportion of 9 to 4; that is, nine degrees of Fahrenheit are only equivalent to four of Réaumur.

HENRIETTA.

How then do you convert one into the other?

MRS. F.

To bring Fahrenheit into Réaumur, you multiply by four and divide by nine, and subtract 32 degrees from the quotient, and *vice versa* when the opposite calculation is to be made. Let me see if you understand it, by telling me what height of Fahrenheit is equal to the 30 degrees of Réaumur of which we were speaking.

ESTHER.

30 multiplied by 9, equals 270; divided by 4, equals  $67\frac{1}{2}$ ; add 32, equals  $99\frac{1}{2}$ , the degree of Fahrenheit.

MRS. F.

Very well; but now suppose it is below the zero of Réaumur, how would you then calculate it? We will say  $40^{\circ}$  below.

F 4

ESTHER.

We must then subtract the  $32^{\circ}$ , thus: 40 multiplied by 9, equals 360; divided by 4, equals 90; subtract 32, equals  $58^{\circ}$  below the zero of Fahrenheit.

MRS. F.

Now convert  $50^{\circ}$  of Fahrenheit into Réaumur, and write it down with the proper arithmetical signs.

ESTHER.

Here it is, mamma:  $50 - 32 = 18 \times 4 = 72 \div 9 = 8$ , the degree of Réaumur.

MRS. F.

I think now that you must all understand the difference most clearly. I see, Mrs. Clifford, that you have one of the new plate-glass screens; do you find it answer?

MRS. C.

Most perfectly.

HENRIETTA.

I do not understand how a plate of glass should keep out the heat of the fire; for when, in a sunny day, I sit in the window, I feel the heat as great through the window as if I were sitting outside.

MRS. C.

This singular and important difference has been the subject of many curious experiments, and it is found that terrestrial heat (that is, heat radiating from fires or heated bodies) is intercepted and detained by glass or other transparent substances, while solar heat is not; and that terrestrial heat being so detained, heats the bodies through which it passes, which solar heat is incapable of doing. More recent researches, however, show that this detention is complete only when the temperature of the source of heat is low, and that as the temperature becomes higher, a portion of the heat radiated, acquires the power of penetrating glass.

ESTHER.

Then it is only because the sun is so much hotter than any terrestrial heat, that it is thus able to penetrate?

MRS. C.

Precisely so; and therefore this discovery is important, because it shows that solar and terrestrial heat are of the same nature; and, at the same time, it leads us to regard the actual temperature of the sun as far exceeding that of any earthly flame.\*

\* Herschel's Preliminary Discourse.

ESTHER.

I have read that in many parts of Russia large sheets of talc are substituted for glass in windows.

MRS. C.

And in the Province of Yakutsk, in Siberia, the inhabitants sometimes cut large blocks of ice, the size of the window frames, which they put in and let them freeze fast. These serve them the winter through ; and though they give rather an opaque kind of light, they are perfectly tight and warm, and remain unthawed until the spring.\*

HENRIETTA.

Then how very cold it must be there.

MRS. C.

Yes, Yakutsk is the coldest part of Siberia — the thermometer sometimes stands there at 44° below the zero of Réaumur's thermometer.

MRS. F.

Which, by our recent mode of calculation, is equal to 67° below the freezing point of Fahrenheit.

MRS. C.

The accounts of the value of glass among

\* Dobell's Travels in Kamtschatka.

the ancients is very contradictory. That it was in frequent use, we see from the number of glass cups, plates, bottles, &c., which have been found in Pompeii, some of blue, green, and yellow glass; and also from the paintings of fruit, eggs, &c. in glass vessels, which adorned the walls of the rooms. That their windows also were glazed, appears from the leaden or brass divisions to the window frames in some of the houses, and in one, a pane of glass yet remains. When windows of glass became common, it is difficult to say. A writer accuses an individual of luxury in having glass windows in the time of Aurelian; and yet Caligula, when giving audience to Philo, a rich Jew of Alexandria, is stated to have attended to nothing but to the new glazing of his windows, so that the imperial palace must have been glazed long before, to have required renewing.\*

## ESTHER.

Did not the ancients know how to render glass malleable?

## MRS. C.

So we are told; and Tiberius is said to have beheaded its inventor. An Arabian writer

\* Sir William Gell.

speaks of the malleability of glass as known to the Egyptians—who were certainly well acquainted with the manufacture of glass, as the objects discovered in their tombs testify. A ball of glass has been found, bearing the date of an Egyptian king who lived about 1500 years before the Christian era. It has a slight greenish hue, and has been worn as the bead of a necklace. The Egyptians also understood the art of carrying devices of various colours directly through the fused substance, an art which is now lost.\* But it appears that the Egyptians carried the manufacture of glass, vitrified porcelain, &c., to great perfection; and every thing that we can do by the application of fire in these arts, they were also able to effect.†

MRS. F.

The old Venetian glass has patterns or devices introduced into the substance with fine filaments of spun glass, which gives the appearance of lace work; this is an art which I believe is lost, and the old Venetian glass is much prized and sought after. The manufacture of the glass beads still exists, and gives employment to some hundreds of persons.

MRS. C.

Did you see it?

\* See Mr. Wilkinson's Thebes.

† Cuvier.



MRS. F.

Yes; when we were at Venice, we made an excursion to the Isle of Murano, where the manufacture is carried on. The glass is drawn out into sticks of the intended diameter of the bead, but a hundred and twenty feet long. These are then cut, polished, and rounded. The process employed in these operations is very simple, but curious; and the manufacturers profess to keep the mixing of the colours, &c. in the glass a profound secret. Looking-glasses are also manufactured in the same island; but France and England have so far surpassed the Venetians in this art, that they cannot attempt to compete with them.

HENRIETTA.

How long have glass windows been introduced into England?

MRS. F.

In church windows, they have been used for upwards of a thousand years, but glazed windows in dwelling-houses were rare, even in the time of Henry VIII. They were then moveable furniture; and we read so late as the reign of Queen Elizabeth, that when the Earl of Northumberland left Alnwick Castle, in 1573, the windows were taken out of their frames, and

laid carefully by. But, talking of glass, I conclude that you are all familiar with the account of the first discovery of glass ?

HENRIETTA.

About the merchants who were wrecked with a cargo of nitre, upon the coast of Palestine, near the river Belus, and who supported their kettles with the blocks of nitre, which, combining with the sand, produced glass ?

MRS. F.

Exactly, so. Whether the account be fabulous or not, there is little doubt but that its first discovery is to be attributed to accident.

ESTHER.

Is sand much used now in making glass ?

MRS. F.

Generally ; but in glass for artificial stones powdered rock crystal is usually employed in preference ; flints and the white quartz pebbles found in rivers are also sometimes used.

ESTHER.

The sand of Alum Bay, in the Isle of Wight, is particularly white, and is much employed in the making of glass.

MRS. C.

And so is that in the vast sand caverns at Reigate.

MRS. F.

I never heard of them, though I have often passed through that town, in my way to Brighton.

MRS. C.

Then I would recommend you to visit them the next time you go that road, for they are interesting from their historical associations, as well as from their being natural curiosities.

ESTHER.

Pray, have the kindness to describe them to us.

MRS. C.

The entrance is upon the top of a hill which overlooks the town, and on which formerly stood a strong castle. The cave is about 200 feet long, and is excavated out of the sand. It contains one branching vault near the centre, called the Barons' Cave, which tradition has rendered famous by asserting that it was there that the Barons held their secret meetings, and drew up the terms which they afterwards compelled John to accept at Runnymede.

ESTHER.

How large is the Barons' Cave?

MRS. C.

About a hundred and fifty feet long, twelve wide, and from ten to twelve high.\* It is supposed to have been originally excavated as a retreat, at the time of the invasion of the Danes. There is also another cavern in the lower part of the town, near an inn ; but in this the sand is left in columns to support it, and the high road runs over it. Here the people amuse themselves in the winter, by playing nine-pins, &c. ; and the sand is dug out for the London markets, and constitutes an object of some traffic.

MRS. F.

Thank you, Mrs. Clifford ; we will certainly visit the Barons' Cave the first opportunity.

MRS. C.

Now that we are on the subject of glass, can any of your young people tell me the difference between barilla and kelp ?

ESTHER.

I fear not ; but we must ask you to explain it.

MRS. C.

They are both, as you know, alkalis, and produce soda. Barilla is the ash of the plant

\* Conybeare and Phillips' Geology.

*Salsola Soda*, which is largely cultivated upon the Mediterranean shore of Spain, in the vicinity of Alicant.\* Kelp is a production of Great Britain, and consists of the ashes of sea-weeds, which are collected upon many of the rocky coasts of Britain, particularly in the Highlands, where it affords employment to a large population.

## ESTHER.

It is produced from a species of Tangle or *Fucus*, is it not?

## MRS. C.

There are four species which are principally used, — *Fucus serratus*, *digitatus*, *nodosus*, and *vesiculosus*, which are the hardest of the tribe; *nodosus* being the most thick and coriaceous of the *Fuci*, is most preferred, and next *vesiculosus*, which is very abundant. The kelp harvest takes place in June, July, and August. The drift-weed, which is thrown on shore, is sometimes used, but never, if injured, as in that state it contains but little salt. The *Fuci* are cut with a sickle at low water from the rocks upon which they grow, and are brought to the shore

\* As much as fifty-five per cent. of soda is contained in the ashes of *Salsola sativa*, which grows in Sicily. (Lindley.)

by a very simple and ingenious process. A rope of heath or birch is laid beyond them, and the ends being carried up above high-water mark, the whole floats as the tide rises; and thus by shortening the rope, the *Fucus* is compelled to settle above the wash of the sea, when it is conveyed to dry land on horseback. The more quickly it is dried the better is the produce. It is burnt in kilns, or merely in holes excavated in the earth, or surrounded with stones. In the Orkneys the holes of earth are preferred. When I tell you that 24 tons of sea-weed only produce one ton of kelp, you will easily understand how the cutting, landing, carrying, drying, stacking, and burning the weed are the source of employment to so many poor people; but, since the admission of foreign barilla this manufacture has nearly died away, and a numerous class of poor and industrious persons have thus been thrown out of employ.\*

MRS. F.

Do they cut the same plants annually?

MRS. C.

No; only every second or third year. But, independent of their use for kelp, the different species of *Fuci* are of the greatest utility. *Fucus*

\* M'Culloch's Highlands, and Brande's Chemistry.

*miculosus* is frequently used in the West Highlands and islands of Scotland, as food for cattle, who regularly come down to the sea-shore, at the receding of the tide, to seek for it\*; and even the deer, have been known to descend from the mountains to the sea-side to feed upon this plant. Linnæus tells us, that the inhabitants of Gothland boil this plant in water, and mix it with meal to feed their pigs; and in Scania they cover their cottages with it, and use it for fuel. In Jura and some other Hebrides, they dry their cheeses without salt, by covering them with the ashes of this plant.†

## MRS. F.

*Fucus serratus* is used for most of the same purposes, and also for manure; and in the Isle of Thanet, the farmers carefully collect the seaweed, which, after a gale of wind, is sometimes thrown upon the shore. It is carted through sloping passages cut in the cliff; and it sometimes comes in quantities amounting to many thousands of loads, which the succeeding tide often sweeps entirely away, if not expeditiously gathered up. You know, also, that *iodine*,

\* Cattle are also very fond of *Fucus canaliculatus*, and never fail to browse upon it in winter, as soon as the tide leaves it within their reach.

† Hooker, in vol. v. of English Flora.

which has been so successfully used in curing goitres, is derived from the marine Algæ; and we are informed that in South America, the stem of a *Fucus* had been successfully applied to the same purpose, long before iodine was employed in Europe.

ESTHER.

Then there is the sea-weed which the companions of Columbus were so alarmed in finding in such quantities.

MRS. C.

That is *Fucus natans*, which covers the sea in the vicinity of the Cape Verd Islands, and the floating masses of which are so abundant, in the seas of warmer climates, as to impede the progress of the vessels.

ESTHER.

Are not the Fuci generally, called *wrack*?

MRS. F.

Yes; a term which is derived from their French denomination, *varec*. The one which we have been just alluding to is often called the *Gulf-weed*.

MRS. C.

The *Algæ*, the order to which the Fuci



belong, afford many other interesting plants. *Fucus tenax*, which, though a small plant, is collected in such large quantities, that 27,000 lbs. are annually imported at Canton, where it is used for the same purpose that we employ glue and gum. The Chinese chiefly use it in the manufacture of lanterns, to strengthen or varnish the paper, and sometimes to thicken or give a gloss to their silks and gauzes.\* The *Laminariæ*, in which the inhabitants of New Holland find materials for instruments † and for vases ‡ to hold water, and which they also eat as food.§ Those of the polar regions yield nourishment in time of famine; and *Laminaria digitata* was consecrated to the sorcerers in Iceland, Norway, and the North of Scotland.

MRS. C.

The last you mention, is the Tangle of the Scotch, and is called by us Sea Girdles.

MRS. F.

*Fucus crispus* ||, which is abundant on rocky shores, has been extensively collected on the coast of Ireland, washed, bleached upon the

\* Lindley.

† *L. buccinalis*.

‡ *L. potatorum*.

§ *L. saccharina* and *esculenta*.

|| *Chondrus* genus of Hooker.

beach, and employed as a substitute for isinglass in making blanc mange, &c. Then there is the Dulse (*Halymenia palmata*), which we have all often gathered and eaten. This is the saccharine Fucus, which is dried in Iceland, packed down in casks, and used as occasion requires. It is also a great favourite with cattle, and sheep in particular eat this species with great eagerness. The Scotch eat it in a crude state, and also dried and rolled up, when they use it as tobacco.\*

ESTHER.

Does not Laver also belong to the order *Algæ*?

MRS. C.

Yes; there are several species of it which are eaten.† But there still remains another interesting genus in this order, the *Gelidium*, which serve as nourishment to several Asiatic nations, who use them to thicken their sauces and to moderate the burning of their spices. With a species of *Gelidium*, the salangane or Chinese swallow (*Hirundo esculentus*) builds its highly esteemed nest. As we are on the subject, suppose we read the interesting account of this little bird,

\* Hooker's English Flora, vol. v. p. 291.

† *Ulva lactuca*, *latissima*, *Porphyra laciniata*, *vulgaris*, &c.

in the 9th volume of the Library of Entertaining Knowledge.

(The book was taken down and the extract read.)

MRS. C.

There is one piece of information which I can add to the account which we have just read; and that is the mode in which the Chinese prepare their birds'-nest soup.

HENRIETTA.

We should like very much to hear it.

MRS. C.

The soup is served up with pigeons' or plovers' eggs floating on it. It is made into a very strong broth, by boiling and consuming the pounded flesh of fowls, a portion of which remains in it. There being neither salt nor pepper in the preparation of this dish, it would be quite insipid were it not for vinegar and soy, which you use at pleasure.\*

ESTHER.

I have heard all kinds of strange stories about Soy, and should like very much to know what it is really made of.

\* Dobell's Kamtschatka.

MRS. C.

Soy is made from a species of *Dolichos* (*D. Soja*). These beans are boiled until all the water is nearly evaporated, and they begin to burn, when they are taken from the fire and placed in large wide-mouthed jars, exposed to the sun and air; water and a certain proportion of molasses or very brown sugar are added. These jars are stirred well every day, until the liquor and beans are completely mixed and fermented; the material is then strained, salted, and boiled, and skimmed until clarified, and will, after this process, become of a very deep brown colour, and keep any length of time. Many persons have thought that gravy was used in preparing this condiment; but this appears not to be the case, the composition being entirely a vegetable one, of an agreeable flavour, and said to be wholesome. There are two or three qualities of soy. To make the best, requires much care and attention. Japanese soy is much esteemed in China, on account of the superior manner in which it is made; perhaps, they have a different species of bean for the purpose. Shopkeepers at Canton who sell soy have large platforms on the roofs of their houses, where the jars for preparing soy are arranged and exposed to the sun, for the consumption of soy is enormous.

Neither rich nor poor can breakfast, dine, or sup without it; it is the sauce for all kinds of food, gives a zest to every dish, and may be said to be indispensable at a Chinese repast.\*

MRS. F.

Thank you, Mrs. Clifford. I think that we must now return home.

MRS. C.

But before we leave our conversation upon the Algæ, we must mention the celebrated red snow of the northern travellers, which is a production of a genus of this order — *Protococcus nivalis*. In Great Britain it is found in the form of a thin stratum on the surface of rocks, or investing decayed vegetable substances with a purple crust. It was brought by Capt. Ross from the Arctic regions, where it was observed covering the surface of the snow, in patches of many miles in extent, and penetrating, in some places, to the depth of twelve feet. It has likewise been found to occur commonly, on most of the mountains of Europe, in similar situations.†

MRS. F.

I think we have now enumerated a long list of

\* Dobell.

† Hooker.

useful individuals in this subordinate class of plants, and, at some other time, we will go into the other orders of Cryptogamia. In all, we shall find plants of the greatest service to man; and indeed, in all our researches, we may rest assured that not even the lowest object in the scale of creation, or the minutest lichen which covers the arid rock, was ever made in vain. But the carriage is come, so we will wish Mrs. Clifford good night, and offer her our best thanks for the gratification and instruction which she has afforded us.

## CHAPTER VI.

## ITALIAN MANUFACTURES.

SPARTERIE. — LEGHORN HATS. — MODE OF CULTIVATING AND PREPARING THE STRAW. — MANUFACTORY AT BENENDEN. — PETRA DURA. — MEDICI CHAPEL. — ROMAN MOSAIC. — ROMAN PEARLS. — ARGENTINE. — LEVITICAL PROHIBITIONS WITH REGARD TO FISH. — JEWS IN ROME. — CEREMONY OF THE RENEWAL OF THEIR PERMISSION TO REMAIN IN ROME. — FINAL RESTORATION OF THE JEWS.

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## HENRIETTA.

AUNT, will you have the kindness to tell me of what your hat is made? I see that it is neither of straw nor willow.

## MRS. F.

It is of the material usually called "Sparterie," a term which originated in its being first made of the grass called *Lygeum Spartum*; but now, I believe, that many other substances are employed. Mine is made of the poplar, which is cut into very thin slices for that purpose.

ESTHER.

What is the reason, Mamma, that Dunstable straw is considered so superior to any other?

MRS. F.

This superiority is generally attributed to the straw being grown upon a chalky soil, which makes it finer in colour and more pliant than that which is grown upon clay or sand; but, independent of the superior fineness of the Italian straw, the British manufacturer will never be able to compete with the foreign, in consequence of the cheapness of labour upon the Continent. Hertfordshire straw has actually been sent to Switzerland, plaited in that country, and returned to England, where, notwithstanding the import duty of seventeen shillings a pound, it can be sold at one quarter less price than plait made at home.\*

ESTHER.

And pray, Mamma, of what straw are the Leghorn hats made?

MRS. F.

Of wheat straw; but, as the universal employment of Leghorn hats renders their manu-

\* Transactions of the Society of Arts.



fature an object of some interest, suppose we devote our conversation this morning to the subject.

FREDERICK.

Thank you, Aunt.

MRS. F.

These hats are called Leghorn, because it is from this port that they are principally sent to England; but they are made in most parts of Tuscany; and in traversing the Val d'Arno, in the road from Pisa to Florence, we saw the peasants sitting at their doors plaiting the straw, which seemed to form the principal occupation of the country. The wheat, in order to bring the straw to the requisite degree of fineness, is submitted to a peculiar mode of cultivation. The poorest, lightest, and most sandy soil is selected, and if it be an elevated land, and full of stones and pebbles, it will answer the better, and produce the finer straw; for, you must recollect, that the object in view is directly in opposition to that which we usually strive to attain. Instead of producing a fine, vigorous plant, the aim is to render it as weakly, as thin, and producing as little grain as possible. The land, therefore, is but slightly prepared for its reception; the corn is sown very thickly, to

crowd the plants closely together. It is usually sown in autumn in preference to the spring, because then the plant sooner arrives at maturity, and the whole of the succeeding summer is before the manufacturer for bleaching and preparing the straw. As soon as the stalk has attained sufficient strength, it is gathered.

ESTHER.

Do not they wait until the corn is ripe?

MRS. F.

The grain is suffered to form, but not to ripen, except upon those stalks which are reserved for seed, and these are employed for hats of an inferior quality. The wheat is pulled up by the roots, in order to procure the stalk as long as possible, and is laid in small bundles to be exposed for four or five days to the sun. The dew assists the bleaching, but rain spoils the colour; once wetted, it loses all its whiteness, and can never be used for the finest hats.

HENRIETTA.

Is the whole of the stalk used?

MRS. F.

Only that part which extends from the first knot in the stalk to the ear. When it has

been sufficiently exposed to the heat of the sun, the straw is placed in a large wooden box with a chafing-dish in the centre. Care is taken that no metal whatever is employed in the construction of the box, which is then hermetically closed, and the straw is thus exposed to the heat for three or four days. It is then sorted according to its different qualities; and so nice are the manufacturers in their distinctions, that sometimes as many as sixty heaps will be selected from one box, each differing from the other in whiteness or quality. Plaiting is the next operation; the plait is begun with five straws, and gradually increased to nine, until the crown of the hat is completed. The sewing of the hats so as to make the needle pass between the different straws is not a difficult process. When the hats are finished, they are bleached, polished, and calendered, being exposed to the fumes of sulphur from one to three days, in the same case in which they were bleached. The discoloured straws are then taken out with a needle and scissors, and the vacancies supplied by others. The hats are polished with little pieces of boxwood in the form of a shuttle, with which they rub them always in the same direction, and a long hot iron of about 15lbs. weight is employed for the calendering process.

ESTHER.

It is by the number of the rows of plait that the fineness of a hat is known, is it not?

MRS. F.

Yes; you will always see a pencil figure in the bottom of a Leghorn hat, which denotes its quality.

HENRIETTA.

What becomes of the inferior straw hats?

MRS. F.

They are generally dyed black, and worn by the countrywomen themselves. The women about Florence wear round black hats with bunches of feathers in them; and I confess the effect was rather curious to my eyes, when the washerwoman who called for our clothes, entered the room drest in a round black hat with three feathers: it was probably these round black hats which made me fancy that the Florentines resemble the Welsh women in their appearance; added to which they are short and rather stout, with clear florid complexions, and well looking. But before we finish the subject of Tuscan hats, I must tell you that there is a manufactory of them in England, where they are produced little inferior in quality to the originals.

HENRIETTA.

Oh! where, Aunt?

MRS. F.

In the village of Benenden, in Kent, where it has been established for some years, through the exertions of one of the Members for the county.

HENRIETTA.

But where did he get the straw?

MRS. F.

Being familiar with its mode of cultivation in Tuscany, he pursued the same method for its production here. The inferior seed (what is usually denominated *tail wheat*) was sown very thickly (20 bushels to the acre) upon the most barren soil, and the straw produced, is hardly inferior to the Tuscan.\* By unpicking a Leg-horn hat, the plait was ascertained, and was first taught to a poor crippled pauper in the work-house, who instructed the children in the same art, until a school was gradually formed. A hat was exhibited at the Society of Arts some years since, and was rewarded with a medal; and since then the demand for these hats has so

\* At Benenden the process of sorting the straws is effected by passing them through wire sieves of different degrees of fineness.

rapidly increased as to afford the means of occupation to a considerable number of persons. Thus have the benevolent exertions of its founder been crowned with success; and thus should we all endeavour, when acquiring knowledge ourselves, to turn it to its only true account—that of promoting the welfare and best interests of our fellow creatures.

HENRIETTA.

Aunt, you say that you were once at Florence; did you see the Mosaic work there?

MRS. F.

The *pietra dura* manufactory, you mean: yes; I saw it among the other objects of curiosity in Florence, and was much interested in the exhibition. The establishment belongs to the Grand Duke, and works only for him. We went into a large gallery which had cabinets round it, all filled with agates and other fine stones employed in the work. There are only eighteen or twenty workmen. The stones are all cut with a wire and emery powder, and are cemented in the spaces allotted to them with a composition of wax, turpentine, &c.; but so tedious is the work, that one of the men showed me a little piece of inlaying, not two inches square, which had taken four months to ac-

compleish. The artists are principally employed in works for the Medici Chapel, which was begun by Ferdinand I. in 1604, and which the present Grand Duke is anxious to complete.

ESTHER.

I suppose it is very magnificent.

MRS. F.

Yes; it is lined with all the richest varieties of jaspers, marbles, &c. Its form is an octagon: six sides are ornamented with magnificent sarcophagi of Egyptian granite\*, and round it are the armorial bearings of sixteen Tuscan cities†, most exquisitely executed in lapis lazuli, mother-o'-pearl, oriental alabaster, and all the most precious stones — the name of each city being inscribed in lapis lazuli upon tablets of *giallo antico*. The grandeur of this chapel forms a singular contrast to the simplicity of the tomb of the great founder of the family. He is buried in the church of St. Lorenzo:

\* The bodies lie in a repository beneath, but the sarcophagi are inscribed to the memory of the six first reigning dukes of the Medici family, — Cosmo I. died 1574 — Francis, 1587 — Ferdinand I. 1609 — Cosmo II. 1620 — Ferdinand II. 1670, — and Cosmo III. 1723.

† Sienna, Fiesole, Firenze, Pisa, Pistoja, Arezzo, Volterra, Cortona, San Sepolero, Montepulciano, Pienza, Chiusi, Soana, Montalcino, Massa, Grosseto; and the arms of the Medici.

a pavement of porphyry, serpentine, and other marbles covers the tomb, upon which is inscribed, "Here lies Cosmo de' Medici, sur-named by a public decree, the Father of his Country. He lived 75 years 3 months and 20 days." Such a modest epitaph on the tomb of so great a man, speaks more forcibly to the feelings than the luxury and ornament bestowed upon those of his less glorious posterity.

HENRIETTA.

Did you see the Roman Mosaic, Aunt?

MRS. F.

Yes; we visited the principal manufactory of it in the Vatican. The patience required in this art is unbounded. The number of shades of glass which are employed, amount to above 18,000, and, by means of these, the colouring of a painting is imitated with the greatest accuracy. The establishment in the Vatican is solely employed in copying paintings for the decoration of St. Peter's.

ESTHER.

But, after all, these mosaics must be very inferior to paintings.

MRS. F.

True; and, compared with them, they must



always hold a very inferior rank in art; but then, mosaic possesses the advantage of being uninjured by damp, time, and all the various causes by which painting is destroyed; and when we view the magnificent copies of the old masters which decorate St. Peter's, we cannot but value an art by which so many fine works are perpetuated, which otherwise would be lost to succeeding ages.

HENRIETTA.

In what manner do they work at it?

MRS. F.

A slab of marble or stone is taken, out of which the artist cuts the space which he intends to fill, and encircles it, for strength, with bands of iron. He then covers this space with a thick layer of mastic, in which he places his pieces of glass, according to the design which he is copying. When the subject is finished, it is all ground down to a level surface, and then polished.

ESTHER.

I suppose, Mamma, when you were at Rome, you saw the Roman pearls made.

MRS. F.

Yes; for I always make a point of seeing the

manufactures of every country which I visit. The Roman pearls differ in their composition from those made in France, the latter being glass beads filled with wax and coated with the silvery substance obtained from the scales of the Bleak (*Cyprinus alburnus*).

HENRIETTA.

Then how are the Roman pearls made?

MRS. F.

They are formed of the purest alabaster, which comes principally from the neighbourhood of Pisa. The alabaster is sawn into slices, the thickness of which is equal to the intended diameter of the pearl. The pearl is then made by an instrument which works something on the principle of the tool called by our carpenters a centre-bit. This tool pierces a hole through the alabaster, and cuts half its thickness into the shape of a hemisphere: the hole in the centre directs where the instrument should be placed on the other side of the slice of alabaster; and by performing the same operation the sphere is completed, and the bead formed with a hole through it. The beads are then strung, and rubbed with fish skin in order to remove their inequalities: each bead is next

placed upon a separate pin and dipped into wax, in order to give it a yellowish hue; and afterwards they are dipped into the silvery liquid which is procured from the air bladder of the Argentine\*, a little fish which is common in the Mediterranean. These pearls have the advantage of being less fragile than those of glass,—indeed, they may be dashed upon the ground without receiving the slightest injury; and their colour, also, is less likely to change than those in which the wax remains exposed to the influence of the atmosphere.

MARY.

Did you ever see the fish from which they are made, Mamma?

MRS. F.

Frequently; for we often had them for dinner at Rome; and so charged are their air bladders with this pearly substance, that in rubbing it between our fingers they were perfectly coated with silver. This fish is much in request among the Jews at Rome, who are forbidden, you know, by the Levitical law †, to eat

\* *Argentina sphyrona*.

† Leviticus, chap. xi. ver. 9—12. With the ancient Romans it was not lawful to use fish without scales at the feasts of the gods.

fish that have no scales ; and they therefore never touch eels, sepia, or other scaleless fish, which are eaten by the Italians.

ESTHER.

Are there many Jews living at Rome ?

MRS. F.

Yes, a great number; and they have one particular part of the city, where alone they are permitted to dwell.\* No Jew is allowed to be a householder in Rome; but their permission to remain in the city is renewed every year, upon the payment of an annual tribute. The ceremony attendant on this grant is very curious, and I was so fortunate as to be a witness to it the last time I was in Rome.

HENRIETTA.

Pray, Aunt, tell us all about it.

MRS. F.

The form is this, as nearly as I could gain from what I saw, and from the answers given to my inquiries, as I was never able to find any published account of the ceremony. A herald from the Roman Government goes to the quarter of the Jews eight and forty hours before the

\* As they formerly were restricted in London to the Old Jewry.

commencement of the Carnival, and orders them to leave Rome in four and twenty hours. The Jews send three of their Rabbi to the authorities, to ask if any thing can be done, on their part, to revoke the mandate. They are told to try. The three Rabbi then go to the Palazzo de' Conservatori, in the Capitol, where they are received by three of the Conservatori to hear their proposals. The Rabbi present to them, kneeling, a large nosegay of flowers, in which is enclosed a draft for the sum appointed as a tribute. The chief Conservator takes it and tells them they shall hear further about it, and dismisses them with the word "Andat," accompanied by a kick with his foot. The Conservatori then carry the Jews' nosegay to the chief Senator of Rome, before whom the deputation is next summoned. He signifies to the Rabbi that their proposals are accepted, and that the Jews will be permitted to remain in Rome another year. They are then dismissed; the chief Senator orders the great bell of the Capitol to be rung, to announce that the Carnival has begun; and parades the Corso and other principal streets of the City in his carriage of state, accompanied by the Conservatori, and the other chief officers of Rome. The Jews, in addition to this tribute, are required to pay for all the flags used in the horse races in the Carnival, and also to furnish

money for the prizes which are given ; these prizes being as an exemption from the indignities to which they were formerly exposed, when they were compelled to run through the Corso, on the first day of the Carnival, for the amusement of the people, who assailed them with every kind of offensive missile in the most barbarous manner. So late as to the period of the French dominion, when this ceremony of the humiliation of the Jews was performed, the chief Conservator used to place his foot upon the neck of the chief Rabbin, who was obliged to prostrate himself before him ; and then, when the Conservator uttered the word " Andat," he spurned away the Rabbin with a kick. The French abolished the whole ceremony, but Pius VII. was obliged, on his return, to restore it, though with great reluctance ; but he caused the ignominious practice of placing the foot upon the Rabbin's neck to be abolished. Recent arrangements have also led to the discontinuance of the kick of dismissal ; and when I witnessed the ceremony, it was no longer given. Let us hope that succeeding years will see the whole ceremony abolished, and that the time for the persecution of this devoted race is fast drawing to a close.

#### ESTHER.

I always feel the deepest interest in reading about the Jews.

MRS. F.

And so we ought. Moses, indeed, was permitted to look in the glass of ages when he foretold so minutely what has happened to this people for now above 3200 years,—the destruction of their city and their temple—their country ravaged — themselves falling before the sword, the famine, and the pestilence—dispirited, persecuted, enslaved — driven from their own land, “dispersed among all nations, left to the mercy of a world that every where hated and oppressed them — shattered in pieces like the wreck of a vessel in a mighty storm — scattered over the earth, like fragments on the waters, and, instead of disappearing or mingling with the nations, remaining a perfectly distinct people, in every kingdom the same, retaining similar habits and customs in every part of the globe—meeting every where the same insult, mockery, and oppression — finding no resting place without an enemy soon to dispossess them — multiplying amidst all their miseries — surviving their enemies \* — beholding, unchanged, the extinction of many nations, and the convulsions of all — robbed of their silver and of their gold, though cleaving to the love of them still, as the stum-

\* The Egyptian, Assyrian, Babylonian, and Roman Empires have disappeared ; the Persians alone, who restored them from the Babylonish captivity, yet remain a kingdom.

bling block of their iniquity — often bereaved of their very children,—disjoined and disorganised, but uniform and unaltered — ever bruised, but never broken — weak, fearful, sorrowful, and afflicted — often driven to madness at the spectacle of their own misery — taken up in the lips of the talkers — the taunt and hissing and infamy of all people, and continuing ever, what they are to this day, the sole proverb common to the whole world.” Such a chain of prophecy already fulfilled, we may look to the completion of all; how far the agency of man is bringing about the designs of the Almighty, we can neither see nor determine — but the growing importance of this outcast race is daily increasing. The time for their persecution is past—their civil disabilities are gradually being removed. Inheriting the “riches of the Gentiles,” the influence which they extend by their “silver and gold” may be an instrument towards their restoration. We cannot tell how far the use of human means may be continued to be employed in working out the fulfilment of prophecy. It is not for mortal men to determine the counsels of God; but we may rest assured that the promise made to Abraham will be fulfilled, and that succeeding ages will see

• Keith's Evidence of Prophecy.



“the outcasts of Israel gathered together from the four corners of the earth,” and brought into the land which their fathers possessed. Then shall they be “raised up as an ensign among the nations” — their “wastes shall be builded” — their cities inhabited — they shall be no more a reproach among the people — they shall be planted in their own land, and shall repair the “desolations of many generations.” \*

\* See Deuteronomy, Isaiah, Ezekiel, and all the other prophets.

## CHAPTER VII.\*

## ON SOUND.

SOUND. — BELL IN EXHAUSTED RECEIVER. — SILENCE IN ELEVATED PARTS OF GLOBE. — PISTOL ON MONT BLANC. — METEORS. — DIFFERENT VELOCITY OF SOUND IN DIFFERENT BODIES. — EXPERIMENT OF THE CRACKED GLASS AND CHAMPAGNE. — SOUNDS AT NIGHT. — ILLUSTRATION OF THE MIRAGE. — ICE A CONDUCTOR OF SOUND. — SEA FIGHTS. — SPEAKING PIPES. — WELL AT CARISBROOK. — CAST-IRON PIPES AT PARIS. — NEW BELL. — ECHO AT GIRGENTIL. — SOUND CONVEYED BY WATER. — ALONG WOOD, WIRE, ETC. — VENTRILOQUISM. — SENSIBILITY OF THE HUMAN EAR. — EAR OF DIONYSIUS. — STATUE OF MEMNON. — MUSICAL ROCKS. — SCIENTIFIC KNOWLEDGE OF THE ANCIENT PRIESTS.

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## HENRIETTA.

AUNT, I have been calling to Mary these last ten minutes, to tell her to come in as it rains, but she will not answer me.

## MRS. F.

Are you quite sure that she hears you ?

\* The first part of this Chapter is chiefly taken from the review of Herschel's Treatise, in vol. xliv. of the Quarterly Review.

HENRIETTA.

Perfectly so; for the other morning she heard me very well, though she was much further down the garden.

MRS. F.

But perhaps it did not rain then.

HENRIETTA.

No, it did not; but what difference would that make?

MRS. F.

Send an umbrella to Mary, and when she arrives I will explain it to you.

In a few minutes Mary returned, and, the party being seated, Mrs. Fortescue began her promised conversation, by asking who could tell what is the vehicle by which sounds are commonly conveyed.

HENRIETTA.

The air, I suppose.

MRS. F.

It is by the air, certainly, that sounds are conveyed; but this important fact was not established until the beginning of the last century.

ESTHER.

And how was it then ascertained ?

MRS. F.

By the simple experiment of suspending a bell in a glass vessel ; as the air was gradually drawn out, the sound became fainter and fainter, until the vessel was completely exhausted, when the sound could no longer be heard. Upon re-admitting the air, the sound was, of course, again heard ; and on forcing more air into the vessel than is equal to the atmospheric pressure, the loudness of the sound increased in like proportion.

ESTHER.

Then now I understand why such a deep silence appears to reign in the elevated parts of the globe. All travellers who have ascended to any considerable height, speak of the universal stillness which pervades.

FREDERIC.

How does my Aunt's experiment account for that ?

ESTHER.

In this manner ; — because the higher we ascend, the rarer and more pure the air, and, consequently all sound becomes much enfeebled ; for, as we have already seen, the denser the air,

the louder the sound, and *vice versâ* — if there were no air, nature would be buried in the deepest silence.

MRS. F.

De Saussure found, at the top of Mont Blanc, that the report of a pistol was no louder than a cracker.

HENRIETTA.

Then, I suppose, if we were to ascend much higher, sound would not be heard at all?

MRS. F.

Yes, it would; for, recollect, so long as *air exists*, sound can be conveyed. Although very much weakened at such elevations, yet it is very evident that at heights, where the air must be 3000 times rarer than on our earth, sounds are still transmitted.

ESTHER.

How can that be determined?

MRS. F.

From the sound of meteors having been propagated down to the earth. The meteor of 1714, whose height when it passed across Italy was at least 38 miles, made a hissing noise, like

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that of fireworks ; and, at Leghorn, gave a loud report, like that of a cannon.

FREDERICK.

I beg your pardon for interrupting you, Aunt; but how could the distance of a meteor be calculated ?

MRS. F.

By computing the interval of time between the appearance of its explosion in the air, and the time that the sound arrives at the ear. If a gun be discharged at a distance, you know that the flash precedes the report by some seconds ; and so lightning always precedes thunder. Now, as we know the rate at which sound travels, by observing the number of seconds which intervene between the flash and the report, we can always determine the distance.

FREDERICK.

At what rate is sound conducted ?

MRS. F.

Eleven hundred feet a second may be estimated as a fair average, but this rate supposes the atmosphere to be perfectly calm. If there be wind, the velocity of the wind must be *added* to the velocity already mentioned, if the wind blows from the sounding body to the ear ; or

must be *subtracted*, if it blows in a contrary direction.

But, to return to meteors. One which appeared five years after that which I have just mentioned, emitted much louder sounds, which in Devonshire and Cornwall resembled that of a cannon; and the air experienced so violent a concussion, as to shake the windows and doors, and even to throw a looking-glass out of its frame and break it; and these effects were the result of an explosion which took place sixty-seven miles above the earth. With respect to the point which gave rise to this conversation, what prevented Mary from hearing Henrietta call her to-day, although, at another time, she heard her, at a greater distance, perfectly well? The reason is this; that sound, as light, is but imperfectly transmitted through mixed media. Fog, falling rain, or snow, all therefore obstruct its progress; for sound moves in different velocities in different bodies. When the medium through which sound or light passes is of the same density, the sound or light will be transmitted with the least loss and the greatest distinctness; but, if the medium has different densities, or consists of different bodies imperfectly mixed, or is interrupted by empty spaces, the light or sound will be either greatly diminished or entirely destroyed. This effect, in

the case of light, may be seen if we look through a piece of cracked glass; or if we add syrup to water in a glass, and, before they have quite combined, hold up the glass to a candle, the candle will appear like a cloud; and the same effect applies precisely to sound. Therefore, if the two media are of different characters, the one a gas, the other a fluid, as in the case of falling rain; or the one a gas, and the other a solid, as in the case of falling or new-fallen snow; the scattering and deadening of the sound will be still more complete.

ESTHER.

I can tell you of an experiment which will show you this very clearly.

FREDERICK.

What is it?

ESTHER.

If a tall glass be half filled with sparkling champagne, or any other fermented liquid, the glass cannot be made to ring, by a stroke upon its edge, so long as the effervescence continues, and while the wine is filled with air bubbles; but, as the effervescence subsides, the sound gradually becomes clearer and clearer, until, at last, when the air bubbles have disappeared, the glass rings as usual.



HENRIETTA.

Let us try this at dinner to-day.

MRS. F.

Humboldt has employed this interesting experiment to explain the well-known phenomenon of distant sounds being heard more distinctly at night than at day.

ESTHER.

In what manner?

MRS. F.

In a hot day, when warm currents ascend from the heated ground, and mix with the cold air above, of a different density, the atmosphere is a mixed medium, as in the case of the glass of champagne.

ESTHER.

And also as in that of the syrup and water; for the transparency of the air, in a hot day, is much affected, and every object appears, as it were, in motion.

MRS. F.

At midnight, on the contrary, the air is transparent, and of a uniform density, and more fit to transmit sounds to the ear without any interruption.

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ESTHER.

The syrup and water is a good illustration of the *mirage* of the desert.

MRS. F.

Yes; but, I presume that you are all well acquainted with this phenomenon and its causes, and, as I have already observed, the points of resemblance between the nature of light and sound are numerous; but, I was telling you that falling or new-fallen snow obstructs sound; the very opposite effect is produced by hardened snow, water, or ice. Of this, I can give you some curious examples.

HENRIETTA.

Pray do.

MRS. F.

Lieutenant Forster conversed with a man across the ice of Port Bowen harbour, a distance of about a mile and a quarter; and Major Denham gives his authority, that the human voice was heard at Gibraltar, at a distance of ten miles. When the ground is dry and hard, or rests upon a continuous stratum of rock, sound is propagated to a much greater distance: hence the practice in many countries of ascertaining the approach of horsemen by

applying the ear to the ground. The sound of cannon has been heard at distances of 120 to 200 miles.

MARY.

Oh! Mamma, that is far indeed; when did it happen?

MRS. F.

It is stated upon the authority of Doctor Clarke, who heard the sound of a sea-fight at a distance of 130 miles; and the cannonade of a naval engagement in 1672, between the Dutch and the English, was heard across England as far as Shrewsbury; and even in Wales, a distance of above 200 miles.

FREDERICK.

I have often seen in shops a speaking-pipe, by means of which people give directions to others below.

MRS. F.

Yes; and, of course, you understand the principle of its invention. The difficulty in transmitting sounds arises from sound spreading and losing itself in the surrounding air: confine it, and you can convey it to an immense distance.

ESTHER.

When you took us last year to see Carisbrook

Castle, I recollect that I dropt a pin down the well, and we all heard it distinctly strike against the water, though the well is 210 feet deep.

MRS. F.

In the cast-iron water pipe at Paris, the lowest whisper at one end, is distinctly heard at the other, a distance of 3120 feet.

ESTHER.

Is the pipe straight?

MRS. F.

It has only two bendings, which are near the middle. A pistol fired at one end, blew out a candle at the other. But have you heard of the newly invented bell?

HENRIETTA.

No, Aunt.

MRS. F.

It is formed of a wooden or tin tube with a small piston at each end. By pushing in one piston, the air in the tube conveys the effect to the piston at the other end, which strikes against a bell; this piston being, as it were, the clapper on the outside of the bell.

FREDERICK.

How ingenious !

MRS. F.

The next point to be considered is the phenomenon of reflected sounds or echoes, some of which are hardly credible. Sound is reflected in the same manner as light.

ESTHER.

The angle of reflection being equal to the angle of incidence.

MRS. F.

Or, to speak in less philosophical, but perhaps more intelligible terms, the angle by which light or sound is reflected back from an even surface, is exactly equal to that by which it is received.

HENRIETTA.

I have heard of an echo which repeats sixty times.

ESTHER.

That is at the Marquis Simonetta's villa near Milan, and has been described by Addison.

MRS. F.

But in some travels in Sicily which I was reading yesterday, I met with a curious cir-

cumstance, which you shall hear. "In the cathedral of Girgenti in Sicily (the ancient Agrigentum), the slightest whisper is borne with perfect distinctness from the great western door to the cornice behind the high altar, a distance of 250 feet. By a most unlucky coincidence, the precise point of divergence near the door, was chosen for the place of the confessional; and a person, by placing himself in the opposite point, distinctly heard every thing which was said in the confessional. Secrets never intended for the public ear thus became known, to the dismay of the confessors, and the amusement of the people, until at last, a listener discovered the secret, and the confessional was removed." \*

ESTHER.

How disagreeable an echo is, in a room where people are singing.

MRS. F.

In a small room an echo strengthens the voice, because it is so soon reflected back from the walls that the echo is not distinguished from the original sound; but, in large buildings, such as cathedrals, where the original sound and the echo are distinctly separated, the effect is very

\* Travels through Sicily in 1824, by a Naval Officer.

disagreeable. I do not call your attention to harmonic sounds, for the subject is too long and too difficult for present discussion.

FREDERICK.

Is sound easily conveyed under water?

MRS. F.

Yes, with great velocity. It travels about 9000 feet in three seconds, when the temperature of the water is at 62° Fahrenheit; and in the Lake of Geneva, some experiments were made, which showed that it travels 4708 feet a second when the temperature is at 46°.

FREDERICK.

Aunt, the boys at school have often puzzled me, by tapping with the head of a pin at one end of a log of timber, when I heard the sound distinctly although I was placed at the other. How is that accounted for?

MRS. F.

By the property which solid bodies possess of transmitting sound with great facility and distinctness. Two Danish philosophers\* have shown this by a curious experiment.

\* Messrs. Herhold and Rafn.

ESTHER.

What is it ?

MRS. F.

Having stretched a metallic wire 600 feet long, in a horizontal direction, they suspended, at one end, a plate of sonorous metal ; and when this was slightly struck, the auditor, at the other end, with the wire in his teeth, heard, at every stroke, two distinct sounds, one conveyed almost instantly along the wire, and the other transmitted more slowly through the air. By some experiments made in the pipes of Paris, it was ascertained, that sound travels along cast-iron about  $10\frac{1}{2}$  times quicker than in air. Glass, iron, and woods are the solids which convey it with the greatest velocity.\* There are several other curious points connected with sounds, such as ventriloquism, &c., which I must leave for the present.

FREDERICK.

Do ventriloquists really speak from their stomachs ?

MRS. F.

No ; I believe it is now generally agreed that all these sounds are practised in the throat.

\* About 18,530 feet a second.



ESTHER.

In what, then, does the art of ventriloquism consist ?

MRS. F.

It is founded upon that property of sound, by virtue of which, the human ear is unable to judge with any accuracy of the direction in which sounds reach it. The art, then, consists in the power of imitating sounds, not only in their ordinary character, but as modified by distance, obstruction, and other causes, and also, in the power of executing these imitations by muscular exertions which cannot be seen by the spectators. These sounds, then, are produced by the muscles of the throat, assisted by the action of the tongue upon the palate, the teeth, and the inside of the lips—all of them being movements perfectly compatible with the absolute expression of silence in the countenance, and which may be performed without the movement of the lips themselves.

ESTHER.

But, how does the ventriloquist contrive to give the voice the effect of proceeding from the direction he requires ?

MRS. F.

If you observe a ventriloquist, you will per-

ceive that he always manages to place himself in the same direction as that in which he wishes the sound to come from. If it be a watchman in the street, that he attempts to represent, he will station himself at the window whence the sound of the *real* watchman would have entered ; or, if he pretends to make a child sing, he will place his head as near as possible to the child's chest, in order to assimilate more closely the real and fictitious direction of the sound.

ESTHER.

Then were he, in the first case, to place himself at a window on the opposite side of the room, or, in the other, to sing six or eight feet from the child, he would soon be detected.

MRS. F.

Exactly so. It is curious to find how acutely sensible is the human ear. Mons. Savart, who has been engaged in experiments on its sensibility, has ascertained that this organ is capable of appreciating sounds which arise from about 24,000 vibrations in a second ; and, consequently, that we can hear a sound which lasts only the 24,000th part of a second.

FREDERICK.

Talking of sound, Aunt, I have heard that the

famous ear of Dionysius is still to be seen at Syracuse. Is that the case?

MRS. F.

It is so; at least, there is a cavern, adjoining the stone quarries, which bears the name. This tradition is believed by all the Syracusans, and the cave is certainly constructed according to the resemblance of an ear, and is endowed with some extraordinary properties of sound. But the story rests upon no historical evidence whatever. This cavern is about 183 feet long, 70 high, and varies in width from 16 to 30 feet. The sides slope gradually to the summit, and terminate by a narrow channel, decreasing to about 20 inches, which communicates with, what is called, the secret chamber of Dionysius. The power of the lower cavern in conveying sound, is certainly great, a whisper being easily heard; and the full voice reverberates so strongly, that it is almost drowned by the echoes, and if several persons speak at the same time, they are quite unintelligible. A bugle horn or flute is multiplied almost into a band of music; the firing of a pistol sounds like the report of a cannon, and lasts ten seconds; and the tearing of a piece of paper is distinctly heard, from one end of the cavern to the other. But there appears to have been no access to the secret

chamber, except the almost inaccessible one, 70 feet from the ground, by which travellers, at present, enter by a rope and pulley ; and though the design of this curious cavern will probably always remain a mystery, yet it is more likely to have been formed as an experiment in acoustics by some ingenious mechanic, than to have been constructed by the order of Dionysius, whose character appears to have been much misrepresented by party writers.\*

ESTHER.

One thing more, Mamma, before we finish. Will you explain to us the nature of the sounds which issued from the celebrated statue of Memnon ?

MRS. F.

Until very lately, they were attributed to natural causes, and were supposed to have been occasioned by the transmission of rarefied air through the crevices of a sonorous stone, like many other instances which exist of a similar phenomenon. The scientific men who accompanied the French expedition into Egypt heard, at sunrise, in a monument of granite in the palace of Karnac, a noise resembling the breaking of a string, which is the very expression used

\* Hughes's Travels in Greece and Albania.

by Pausanias to describe the sound of the Memnon. De Humboldt speaks in the *Orinoco* of musical rocks (*loras de musica\**), which sounded at sunrise; and recent travellers have given explicit accounts of rocks in Arabia Petræa which also emit sounds at particular hours of the day; and indeed Sir A. Smith asserts, that at six o'clock in the morning, he heard very distinctly the sounds issue from Memnon which had rendered it so famous in ancient times. Now, in all these instances, the sound is supposed to proceed from the sudden change of temperature which takes place at the rising of the sun. The stones are heated during the day by the action of the sun, and the difference of temperature between the subterraneous and the external air attains its maximum (or greatest difference) about sunrise, or, at that moment, which is furthest from the period of the greatest heat of the preceding day. The sound therefore proceeds from the impulse of air upon the stones; and the Egyptian priests, having observed the phenomenon on some rocks in Egypt, were supposed to have arranged the stones of the pedestal of Memnon so as to produce this singular effect; but it now appears, from the relation of Mr. Wilkinson, that on ascending the statue

\* Voyage, vol. vi. p. 377.

he found that there is a stone in its lap, which, upon being struck, emits a metallic sound, and which might still be made use of to deceive the credulous. In the block behind, is cut a squared space, as if to admit a person, who might be placed there to strike the stone, and who would lie concealed from the most scrutinous observer in the plain below. Mr. Wilkinson is therefore convinced that this sound was the same that deceived the Roman visitors, with whose description of it, it perfectly accords.\*

ESTHER.

Thank you, Mamma. I suppose many of the tricks of the ancient priests may now be explained by natural causes.

MRS. F.

Yes ; there seems to be little doubt but that the Pagan priesthood kept all the mysteries of science confined to the recesses of their temples, and employed them to delude, with apparent miracles, the rest of mankind, who, unsuspecting of fraud, and unacquainted with the powers of nature, regarded as supernatural, that which was the effect of human agency. In the trials to which they subjected the initiated, or candidates for the priesthood, “ we cannot

\* Wilkinson's Thebes, p. 97.

mistake at first sight an ingenious application of the secrets of mechanics and acoustics; the scientific illusions of optics, perspective, and phantasmagoria; different inventions belonging to hydrostatics and chemistry; the skilful exercise of practical observations on the habits and sensations of animals; lastly, the employment of secrets, used in every age, by means of which the human frame is preserved and rendered invulnerable to the action of fire.\*

## ESTHER.

But we find no positive accounts of the knowledge of all these sciences in the writings of the ancients?

## MRS. F.

No; because the writers of antiquity either belonged to the priesthood and were interested in perpetuating the delusion, or, as more frequently happened, were deceived themselves. But the effects speak, and oblige us to admit the existence of the causes. What the ancients state they have done, we possess the means of doing. Equally available methods, therefore, were known to them.

\* *Salverte, des Sciences Occultes des Anciens.*

FREDERICK.

Thank you, Aunt; but how are all the wonders of the Cave of Trophonius accounted for?

MRS. F.

That the magical slumbers, dreams, and visions, which were produced in the Cave of Trophonius, were the effect of some powerful narcotic acting upon the body after the mind had been predisposed by a certain train of ideas, seems now correctly supposed; and to some ingenious mechanism may be attributed the mystery of the same cave. Its entrance was too narrow to admit the passage of a man; yet, when once his knees had entered, the whole body was rapidly drawn within. To the mechanism that acted upon the votary was added, on this occasion, some other which enlarged the opening.\* Thus the progress of science enables us to account for many of the supposed miracles of the Heathens; and it is wiser, therefore, to conclude that they possessed many of the secrets of science, than to accuse of falsehood so many accounts, of which the advancement of knowledge has caused the wonder and impossibility to disappear.

\* *Salverte.*



## CHAPTER VIII.

## ST. VINCENT DE PAUL.

ST. VINCENT DE PAUL. — CAPTIVITY AT TUNIS. — TUTOR TO  
 CARDINAL DE RETZ. — CHANGES PLACES WITH A GALLEY  
 SLAVE—*SCŒURS DE LA CHARITÉ*. — PRESIDENT OF THE COUNCIL  
 OF CONSCIENCE. — *SALPÉTRIÈRE*. — SENDS SUPPLIES TO LOR-  
 RAINE — *ENFANS TROUVÉS*. — HIS DEATH. — FOUNDATION  
 OF THE ORPHAN ASYLUM. — ST. VINCENT IS CANONIZED BY  
 THE POPE.

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“ A favourite band, whom mercy mild,  
 God's best lov'd attribute, adorned ; whose gate  
 Stood ever open to the stranger's call ;  
 Who fed the hungry, to the thirsty lip  
 Reach'd the friendly cup ; whose care benign  
 From the rude blast secur'd the pilgrim's side ;  
 Who heard the widow's tender tale, and shook  
 The shackles from the prisoner's feet ;  
 Who each endearing tye, each office knew,  
 Of meek-eyed, heaven-descended Charity.”

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## HENRIETTA.

ESTHER, what have you been reading this  
 morning?

## ESTHER.

A biography of St. Vincent de Paul, the

founder of the Hôpital des Enfants Trouvés at Paris, and also of the Institution of the Sœurs de la Charité.

HENRIETTA.

I never heard of him before. Will you give me some account of his life?

ESTHER.

I was going to propose it for our amusement this afternoon, as it rains too fast to go out. Mamma has kindly lent me her notes, which I will read to you, if you will call Mary and Frederick, as I should like them both to hear the biography of St. Vincent; for no one carried philanthropy to the extent which he did, and his life is a bright example of the good which a simple individual may do to his fellow-creatures, without any assistance but that of virtue, and the blessing of Heaven upon his endeavours.

Henrietta having returned with her cousins, Esther began her narrative.

ESTHER.

Vincent de Paul was born at the close of the sixteenth century \*, in the obscure village of Pouy, near Dax, in the centre of those sandy

\* In 1574.

tracts which are known under the name of the Landes.

HENRIETTA.

That is the country where the people walk upon stilts, is it not ?

ESTHER.

It is; for were they not to adopt this expedient, they would be unable to traverse these sandy tracts, where they sink at every step which they take. But to return to our biography.

His parents were poor labourers, and Vincent spent his early years in tending his father's flock, a fit preparation for those pastoral duties which Providence had designed him to perform. The house in which he lived was afterwards converted into a chapel, which even revolutionary fury knew how to respect ; and near it, stands an ancient oak, under which, tradition relates, that the youthful shepherd loved to recline, and which was often perhaps the scene of his early benevolence; for, even at that period of his life, he gave "according to his ability," and would cheerfully endure the calls of hunger in order to bestow his scanty meal upon the first beggar whom he met. His early promise induced his father to educate him for the church; and he was admitted, at the age of twenty, into ecclesiastical orders. In 1605, he was taken pri-

soner by a pirate, when on a voyage from Narbonne to Marseilles; and carried as a slave to Tunis. After having been three times sold in the public market, Vincent at last became the property of a renegade, upon whom his conversation, his patience, and his resignation produced such a change, that he repented of his apostacy, and was anxious to escape from Tunis with Vincent. In the middle of the night, in a frail boat, without compass and without a pilot, these two men set sail to traverse the Mediterranean; but Providence guided their bark, and they reached France in safety; and Vincent had soon afterwards the joy of seeing his renegade companion again admitted into the church which he had forsaken. Nor was he, in after life, unmindful of the lesson taught him by the rigours of his three years' captivity. After having sent a large sum to redeem his successors in misfortune, and having founded an hospital for them within the walls of Algiers, he established a permanent fund for the redemption of the slaves, and sent them colonies of missionaries to confirm and strengthen their faith during their continuance in bondage. Hearing that the parish of Châtillon was without a pastor, it having been three times refused in one year, in consequence of the poorness of its endowment, Vincent directly applied for the appointment, and obtained it. Here he had a full opportunity of seeing the influence

of a conscientious minister; and while he gained the confidence and affections of his flock, he was able to mature his plans for the reformation of the abuses which existed among the clergy. But he was soon \* called upon to leave his parish, and to take charge of the three sons of the Marquis de Gondi, the General of the galleys: one of these pupils was the celebrated Cardinal de Retz, well known in the war of the Fronde, and who profited but little from the lessons of such a master, although he afterwards, when in authority himself, sanctioned and protected all the establishments of Vincent de Paul.

Though a teacher of others, Vincent did not neglect the discipline of himself; and his struggles with his own infirmities have not been left unrecorded. Finding that in his intercourse with the great, there was a certain roughness in his manners, he felt the necessity of correcting them. He directly, as he states, addressed himself to the Most High, and prayed Him to change his harsh and forbidding manners and give him a gentle and benignant heart. One would imagine that his prayer was heard, for his gentleness and affability became afterwards proverbial.

During the three years which he passed in the family of the Marquis de Gondi, Vincent

regularly visited the galley slaves, among whom he appears to have been thrown by Providence, the more to place them under his special protection. The change which he worked in the minds of these unhappy men was incredible ; he succeeded in making the galleys, these dens of wickedness, temples to the living God, whose praises now issued from mouths which before were filled with blasphemy and execration.

The year 1622 is remarkable for an act of self-devotion, of which none but a Christian could be capable. Being anxious to form a just opinion of the actual state of the galleys, Vincent set out for Marseilles alone and unknown. As he went from one malefactor to another, and heard their different tales of crime and woe, there was one man who appeared more despairing than the rest, and whose miserable countenance excited his warmest sympathy. Vincent inquired into the cause of his despair, and learned that he had been unjustly condemned for some trivial offence to the galleys, and that he had a mother, a wife, and children, who were all reduced to the most abject misery by his slavery. Touched by his misfortunes, and knowing no other way of remedying them, Vincent took the generous resolution of changing places with the criminal. Like St. Paulinus \*, who sold himself

\* Bishop of Nola — born 353.

to redeem from captivity the son of a poor widow, Vincent (by permission of the officers) placed himself in the stead of the young galley slave; with his own hands, fixed the chain round himself, and then desired the criminal to depart quickly and carry peace and consolation to his afflicted relations. How long Vincent remained in his voluntary captivity is uncertain, so various are the accounts of different writers; but it appears that although he had taken every precaution not to be recognised, the Countess de Joigny, daughter-in-law to the Marquis de Gondi, being uneasy at his disappearance, took such active measures to find him, that he was discovered and liberated. He ever after felt the acutest pain from the irritation and weight of his self-imposed fetters, which were the cause of severe suffering to him to the end of his life. Again did Vincent, on his liberation, turn his own sufferings to the benefit of humanity, and learn from his own "to weep at others' woe." In prosperity he paid the debt of gratitude he owed to Providence, by founding at Marseilles an hospital for the reception of the galley slaves. He never would allude to this extraordinary action, so anxious was he to conceal his noble self-sacrifice; but Louis XIII. immediately conferred upon him the appointment of Almoner-General of the Galleys.

The rich establishment of St. Lazarus was soon after assigned to him, in order that he might apply its revenues to the relief and instruction of the inhabitants of the country. Vincent took a year to consider the proposal, so unequal did his humble mind lead him to consider himself, to undertake so responsible a stewardship. He established the congregation of missionaries, some of whom were destined to extend the gospel in distant regions, others to go on home missions into the different provinces of France.

HENRIETTA.

But, did you not tell us that he also founded the establishment of the *Sœurs de la Charité*?

ESTHER.

He did. This is, indeed, one of the noblest institutions of humanity, and nothing but Christianity could lead the human mind to so great a sacrifice as that which is made by these humble servants of their Master. Their quiet unobtrusive works of charity, may be compared to the gentle dew from heaven, which sinks secretly and silently into the earth, which it refreshes with its vivifying influence. None were admitted into the sisterhood whose family had not borne an irreproachable character for se-



veral generations ; and in order to preclude the possibility of any lingering feeling towards the world, Vincent required that they should only be received into the establishment, after five years of probation, so that they might enter the sisterhood fully aware of the arduous duties which they undertook ; nor would he then allow them to dedicate themselves for more than one year, but required that annually their vows should be renewed, so that no backsliders or unwilling or lukewarm servant should be engaged in so righteous a cause. “ You will have,” he said, “ no monasteries but the houses of the poor, no cloisters but the streets of towns and the rooms of hospitals, no enclosure but obedience, no veil except a holy modesty. My intention is, that you tend every infirm person as a tender mother who watches over an only son.” No duties are imposed upon them but the relief of suffering humanity ; and every moment is so entirely devoted to the care of the wretched, their lives are so occupied by the exercise of works of charity, that they have no disposition for levity, but count all the most heavenly virtues of our nature as the ordinary employment of life.

In 1643, Vincent was summoned to attend the death-bed of Louis XIII., who wished for this holy man to assist and support him in his last hour. According to the desire of the dying

monarch, Anne of Austria named him President of her Council of Conscience, an office which gave him great weight in the nomination of the clergy, and in the regulation of ecclesiastical affairs, but he would never accept any preferment himself; and, in honorable indigence, attended for ten years the Council of the Regent, with all the simplicity of a village pastor.

The next great work of St. Vincent, of whom the Almighty appeared to bless the undertakings \*, was the foundation of the Salpêtrière Hospital.

HENRIETTA.

What a singular name !

ESTHER.

It was so called because it was erected on the site of a manufactory for saltpetre.

In Paris there were then 40,000 beggars reduced to the most abject misery. Such an undertaking alarmed even the most zealous of his coadjutors ; but Vincent always answered, that “ the treasures of Providence were inexhaustible, and that distrust dishonoured God.” “ Let us only begin,” he would say,

\* “ And look whatsoever he doeth it shall prosper.”

"and God will finish." He founded the Hospital of the Salpêtrière, which receives, in perpetuity, 6000 persons. He went to solicit assistance in his undertaking of the Regent; but she excused herself upon the state of the times, and answered that she had nothing left to give. "And your diamonds, Madam," answered he; "does a queen require them?" Anne immediately unclasped her diamonds and gave them to him, desiring him to keep the secret of her sacrifice. "No," exclaimed Vincent de Paul, "I cannot keep it; I have much good to do, and it is necessary for the interests of the poor that such an example of charity should be known by the whole kingdom."

Vincent next sent large supplies for the relief of Lorraine, which, during the government of their Duke, Charles IV., was reduced to the greatest distress by war, pestilence, and famine. A deputation was sent by this wretched province, not to the Sovereign, or to the Ministers of State, but to a poor priest, — to the humble Vincent, whom they designated in their address, as steward of the affairs of God. Nor were they disappointed in their confidence. For ten successive years he sent money, food, cattle, clothing, &c. to his distressed countrymen; and so unbounded was his liberality, that, at the termination of their calamities, a general procession was or-

dered to beseech the Almighty to preserve the life of their benefactor, and to shower His choicest blessings upon the saviour of their province. When the wars of the Fronde afterwards ravaged the other provinces of France, they also experienced his tender care, and he caused immense sums of money to be transmitted to them.

FREDERICK.

But where did he get so much wealth to distribute, for you said that he was very poor ?

ESTHER.

First, by the irresistible force of his eloquence and his example ; by the universal opinion entertained of his sanctity ; by the universal confidence which he inspired ; and lastly, by means of that holy assembly which met every week in his church of St. Lazare, to deliberate upon the wants of their fellow-creatures, and to adopt the best means of relieving them. In these assemblies were all the great and virtuous of the kingdom—pontiffs, princes, magistrates, the Regent Anne of Austria, the Queen of Poland, and all the rich and the charitable, who laid their treasures at the feet of Vincent, confident that they would be applied to the best purposes.

A traveller upon earth, a sojourner, as we all

are, Vincent felt the necessity of redoubling his exertions as he drew nearer the close of his pilgrimage, and his good works multiplied in proportion as he had the less time to execute them. The Foundling Hospital next called forth his generous exertions. Returning, on one occasion, from a mission, Vincent found under the walls of Paris, a wretched infant, whose limbs a beggar was on the point of distorting, in order to make the little sufferer an object of commiseration, and consequently of gain, to its inhuman master. "Barbarian!" exclaimed St. Vincent, as he rushed upon him. "I am deceived, for I took you, at a distance, for a human being." Snatching his victim from him, Vincent carried it in his arms through Paris, assembled a crowd around him, to whom he related this tale of horror, and conjured them to co-operate with him in rescuing these helpless innocents from destruction. His appeal was heard, and he met with the most ready assistance and co-operation: but soon the number of these deserted infants became so great, that all those who had hitherto assisted him, came to tell him that they must leave them to their fate. Undaunted by the obstacles which surrounded him, Vincent asked only for one day, and mustered an extraordinary assembly, for the following morning. Vincent caused five hundred of

these poor orphans to be placed in the sanctuary of his church, in the arms of Sisters of Charity. He then mounted his pulpit, and addressed the assembly in behalf of the infants they were about to abandon, concluding with an appeal to the female part of his auditors. "Now, ladies, you have adopted these children; you have become their mothers after grace, since their mothers after nature have forsaken them. Consider, if you also, will abandon them for ever. Cease in this moment to be their mothers, and become their judges. Their life and death are in your hands. I am going to take your votes and suffrages. It is time that you pass judgment upon them. There they are before you. If you continue your care over them, they will live; if you desert them, they will all die to-morrow." The appeal was not made in vain, the cause of humanity had never a greater triumph. This same assembly, which had met, resolved to forsake the children, voted by acclamation the foundation of their hospital, and endowed it immediately with considerable funds, — so electrified were they all by the eloquence of St. Vincent.

But his career of usefulness was now drawing to a close. The health of St. Vincent began visibly to decline; and though forced by the Archbishop of Paris to accept a carriage which

the Queen Regent had given to him, it was with the greatest difficulty that he could be persuaded to make use of it. He called it always "his shame;" and it was usually employed in conveying the infirm and the sick whom he met in his road, to their homes or to the hospitals. The last four years of his life Vincent was unable to leave the house; but he still continued his superintendence of the poor, and no work of charity was entered upon without his participation.

After severe suffering, he died in 1660, at the age of 87. His remains were attended to the grave by all his fellow-workers in charity. At the termination of his obsequies, the Princess de Conti reminded the bystanders that this virtuous man was not allowed time, to mature a project which he had formed, of opening an asylum for the orphans of poor artisans. She ended her appeal by asking them, "if they would leave him *one regret* beyond the grave?" At these words, without any deliberation, all decided unanimously to pay this last tribute to his memory, and the foundation of the Orphan Asylum was determined upon at his tomb.

At the head of nine sovereign princes, Louis XIV. asked his canonization; and on obtaining it, Louis XV. ordered the liberation of twelve galley slaves at Marseilles, who had been condemned to perpetual labour. But, an old man,

who had known Vincent at Marseilles, when he heard of the intention to canonize him, exclaimed, "What! you wish to canonize him! Oh! I knew him well — he will never allow it; he was too humble." Paris owes to him the foundation of thirty-five charitable institutions, besides those which are scattered all over France. Thus did this humble apostle of humanity leave a number of establishments more useful to his country, than the trophied monuments of his ostentatious sovereign Louis XIV.

#### HENRIETTA.

Thank you, Esther; I am sure, that we have all been much interested by your biography.

#### ESTHER.

I am glad that you have; but, recollect one thing — it is to God, not to man, that we must ascribe the praise. It is to the religion of our blessed Saviour that this great man belonged — it is the spirit of Jesus alone, which could have created such wonders; for nothing but the regenerating influence of the Christian religion, could have produced such an example of holiness, benevolence, and humility.



## CHAPTER IX.

## THE SUGAR CANE.

HARD AND SOFT WATER. — SUGAR, HISTORY OF. — IDEAS RESPECTING IT. — INTRODUCED INTO THE COLONIES. — SUGAR REFINING. — ALIMENTARY QUALITIES. — BODY GUARD OF THE KING OF COCHIN CHINA. — HINDOO TRADITION. — SPECIES OF SUGAR CANE. — MANNA. — EARLY RISING. — ANECDOTE OF FREDERICK II. — ECONOMY OF TIME. — DESTRUCTION OF BOOKS BY A BEETLE.

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“ESTHER,” said Mrs. Fortescue, as the party were seated at the tea-table, “how very weak the tea is this evening!”

ESTHER.

So it is, Mamma; and I know not how to account for it, for the water was boiling when I made the tea.

MRS. F.

Perhaps, by mistake, they have given us hard water.

HENRIETTA.

Aunt, I often hear people talk of *hard* and

*soft* water. Will you have the kindness to explain to me in what the difference consists?

MRS. F.

The distinction of soft and hard water has reference to its greater or less purity. Spring and river water are generally more or less contaminated with foreign substances, while rain water is much more pure. Hard water, as you are aware, will not dissolve soap; nor is it calculated for extracting the flavour of tea. This is in consequence of the quantity of sulphate of lime it contains, which, if you were a chemist, you would know decomposes, or, as we call it, curdles soap, separating the materials of which it is composed.

FREDERICK.

But what is it that forms such a crust sometimes inside the kettles or other vessels in which water is boiled?

MRS. F.

That is carbonate of lime, which appears to be held in solution by an excess of carbonic acid. Such water is less *hard* than that which contains sulphate of lime, and becomes *soft* by boiling, when the overplus carbonic acid is dissipated by the heat, and the pure carbonate of

lime being precipitated, forms the coating or incrustation to which you allude. The quality of water is also of great consequence in brewing, and the peculiar flavour of the Burton and other kinds of ale depends upon the mineral contents of the water employed.

HENRIETTA.

Thank you, Aunt, for this explanation. Esther, give me some sugar, if you please.

MRS. F.

I dare say, some of you can tell me, where sugar first came from.

FREDERICK.

Was it not from the West Indies ?

MRS. F.

No, it was imported into those islands.

HENRIETTA.

Then pray tell us, Aunt.

MRS. F.

It appears, from a collection of the best authorities, that China was the first country in which sugar was cultivated, and its produce manufactured. It is tolerably well ascertained

that the inhabitants of that country enjoyed its use two thousand years before it was known and adopted in Europe.

**ESTHER.**

When do we first hear of it?

**MRS. F.**

There is no mention made of sugar in the sacred writings, or in the history of Egypt or Phœnicia. The great physicians, Theophrastus, &c., are the first who have spoken of it, under the name of "Indian salt;" and from the descriptions given of it by Pliny and Dioscorides, it appears, that it was produced only in the form that we now call sugar-candy. The "Indian salt" was brought to Greece and Rome from India within the Ganges, and Arabia; but it was not cultivated in these countries. The sugar cane then only grew in the Islands of the Indian Archipelago, in the kingdoms of Bengal, Siam, &c.; and the sugar produced from it passed, with perfumery, spices, and other merchandise, to the countries on this side of the Ganges. It found its way into Arabia in the 13th century, that being the period when merchants first began to visit India.

**HENRIETTA.**

Did the merchants know what plant produced the sugar?

MRS. F.

The Indians, who carried sugar to Ormus, informed the merchants that they extracted it from a reed; but this indefinite assertion, divested of all circumstantial detail, gave rise to a variety of speculations respecting a plant which yielded so extraordinary a product.\* Some thought it a kind of honey which formed itself without the assistance of bees; others considered it as a shower from heaven which fell upon the leaves of the reed; while others again imagined it was the concretion of the reed, formed in the manner of gum.

ESTHER.

When did they first find out the truth respecting it?

MRS. F.

In the year 1250, when all these fanciful

\* On the strength of this information, the Asiatics on this side the Ganges sought among their reeds for one which yielded so precious a production, and found a kind of Bamboo (called *Mambu*), which gave a white spongy concretion somewhat similar in taste to sugar. The Arabians also strove to find sugar in their country, and the concrete juice of a kind of Dogbane (*Apocynum*), known to them by the name of *Al-hasser*, they called sugar. Hence Avicennes speaks of three sorts of sugar: *Zucca arundineum*, which is the Indian salt, or our sugar-candy, the *Zuccar mambu*, or Tabaxir of the Persians; and *Alhasser Zuccar* of the Arabians.

speculations were put an end to, by a Venetian traveller.

HENRIETTA.

Oh ! that must be Marco Polo, about whom you were telling us some weeks since.\*

MRS. F.

It was so. The merchants, who before that period, had only gone to Ormus, now, emboldened by his example, extended their voyages, and brought away the sugar-cane and the silk-worm. The story of the latter being concealed in a reed, you all know. Arabia Felix was the first nursery of these productions, whence they passed into Nubia, Ethiopia, and Egypt, where sugar was soon made in great abundance.

HENRIETTA.

Where was it next sent to ?

MRS. F.

On the discovery of Madeira, in 1420, Don Henry introduced the sugar-cane into that island, from Sicily, where, as well as in the Canaries, it was cultivated with success; and when Columbus discovered the New World, Pierre d'Etienne took the sugar-cane to Hispaniola,

\* See chap. 2.

where its cultivation extended with such rapidity, and the revenues it brought in were so considerable, that we are told the cost of the palaces of Madrid and Toledo, built by Charles the Fifth, was defrayed by the proceeds of the port duties on the sugar imported from Hispaniola.

ESTHER.

The sugar-cane still exists in Sicily, and small plantations of it are to be seen at the village of Avola, near Syracuse, where they are kept up, as objects of curiosity. The district between Syracuse and Catania was celebrated for sugar-canes at the time that Sicily was obliged to furnish one thousand pounds weight annually for the Knights of Malta. But, was it never cultivated in any other part of Europe except in Sicily?

MRS. F.

Yes; it was planted in Provence, but the climate proved too cold. In Spain there exist sugar manufactories, I believe, even to this day.

ESTHER.

How far north may it be cultivated?

MRS. F.

As high as the 40th degree of latitude; but the torrid zone is most favourable for its production.

FREDERICK.

When did our West Indian Islands begin to cultivate it?

MRS. F.

Sugar-canes were transplanted to Barbadoes from Brazil (where they had been taken by the Spanish and the Portuguese settlers) in 1641, and from that island, were sent to the others.

ESTHER.

But it was not until late that sugar was much used in England.

MRS. F.

No; so late as 1466, the use of sugar in England was confined to medicines and feasts, and it was sold in apothecaries' shops. Its scarcity continued until 1580, when it was brought from Brazil to Portugal, and thence to this country. Such is the history of the introduction of sugar. It now only remains to tell you, that the art of extracting the sugar and of refining it, among the Chinese, consisted in obtaining it in its greatest purity under its crystalline form, or sugar-candy. This art was not brought from India with the cane, and consequently, it was some time before a proper mode of preparing it was invented; and the first sugar produced was



black, and filled with impurities. At the end of the fifteenth century, the Venetians introduced the art of sugar-refining into Europe. They first imitated the Chinese, and purified the coarse sugar of Egypt, by refining it three or four times over, and selling it in the shape of candy. They afterwards adopted the use of cones, and sold refined sugar in the loaf.\*

HENRIETTA.

How is sugar refined?

MRS. F.

That, Henrietta, I must leave you to ascertain yourself, and I will point out to you what books to consult on the subject of the manufacture of sugar; its refining, claying, &c.; but, as I have often told you, my object in thus conversing with you, is not to save you the trouble of reading, but rather to stimulate you with an additional desire for it; and therefore I often only allude to points upon which you probably are ignorant, purposely to lead you of yourself to seek the information you stand in need of.

FREDERICK.

Is not sugar very wholesome, Aunt?

\* Sugar-refining was first practised in England in 1544.

MRS. F.

A French chemist \* calls it "the most perfect alimentary substance in nature." It has always been esteemed very beneficial, and analysis has proved, that "it affords the greatest quantity of nourishment, in a given quantity of matter, of any substance in nature."† During the crop time in the West Indies, the negroes grow fat and flourishing, and the sickly among them revive and recover their health. In China and in India, the same beneficial effects are recorded; in the former country, we are told by Sir George Staunton, that many of the slaves and idle persons are frequently missing about the time that the canes are ripe, hiding themselves and living entirely in the plantations.

FREDERICK.

And do cattle like it?

MRS. F.

Yes; it is not less wholesome to the brute creation. Horses and cattle have subsisted for months at St. Domingo upon it alone; and, during the crop time, when they are fed upon the cane-tops, they become sleek and in better condition than at any other time, though worked

\* Dutrone.

† Dr. Rush of Philadelphia.

harder. In Cochin China, horses, buffaloes, elephants, and all domestic animals are fattened upon the sugar-cane; and the people themselves consume a great quantity of sugar.

HENRIETTA.

How do they eat it?

MRS. F.

Generally with their rice; and there is little else but these two substances to be met with as food in all the inns: but the opinion of the fattening properties of sugar has given rise to a whimsical law in Cochin China.

MARY.

What is that, Mamma?

MRS. F.

The body guard of the king, selected for purposes of pomp and show, are allowed a sum of money, with which they must buy sugar and sugar-canes, and they are compelled, by law, to eat a certain quantity daily. This is to preserve the fat sleek appearance of those soldiers who are honoured by approaching so near the person of the king; and travellers relate that they certainly do honour to their master by their handsome appearance. There are about five hundred

of these men, all equally plump and well-looking, who are thus actually fattened upon sugar.

Now, I believe that I have told you all that occurs to me at present respecting sugar.

HENRIETTA.

And we are much obliged to you for it, Aunt.

ESTHER.

The Hindoos have a curious tradition of the manner in which the sugar-cane came to their country, which proves in what high estimation it is held by them.

MRS. F.

I should like to hear it.

ESTHER.

They relate that, in very ancient times, a vessel, belonging to their country, chanced to leave one of her crew, who was suffering under severe illness, upon a desert island, at a considerable distance, in the Indian seas; and that returning by the same route, curiosity prompted them to inquire after the fate of their comrade, when, to their utter astonishment, the man presented himself before them, completely recovered from his sickness, and even in a state of more than common health. With eagerness, they in-

quired for the medicine he had so successfully used, upon which he acquainted them, that he had subsisted, from the time of their departure, *solely* upon the sugar cane. Attracted by such a powerful recommendation, the precious plant was carefully transplanted, and cultivated in their own country.\*

HENRIETTA.

Thank you, Esther, for your story. Is there more than one kind of sugar cane?

MRS. F.

Yes; there are several species or varieties, of which the old Creole cane, the cane of Otaheite (or Bourbon cane), and the Violet or Batavian cane, are the principal.

ESTHER.

By the old Creole cane, I suppose, Mamma, you mean that which was introduced from Sicily to Madeira, the Canaries and the West Indies.

MRS. F.

Exactly so; for the cane of Otaheite, we are indebted to the voyages of Bougainville, Cook, and Bligh. It is considered as one third more

\* Porter on the Sugar Cane, from which work the above account is chiefly taken.

† Humboldt.

productive than the common cane ; is taller, thicker, and altogether more luxuriant in its vegetation. Bougainville transported it to the Isle of France, whence it passed to Cayenne, Martinique, and since 1792 to the other Antilles. The third kind is the violet cane, and is purplish in its foliage ; it is a native of Java, and is, I believe, chiefly preferred in the fabrication of rum.

ESTHER.

It is not surprising that the ancients should have thought sugar to have been a concretion on the outside of a tree, for they were acquainted with manna, which substance is found in that state.

MRS. F.

But the ancients, though they found manna, yet were unacquainted with its real nature ; for, being accustomed to find it upon different kinds of trees, they inferred that it was a substance wholly foreign to the tree itself, an error very easily embraced by those who were not aware that the nutritive juices of trees are nearly, if not wholly, the same.

HENRIETTA.

Then, what is manna, aunt ? for I must confess that I do not know much about it.

MRS. F.

The manna of commerce is chiefly furnished by the flowering Ash (*Fraxinus Ornus*), but several other species \* of the Ash are also employed.

HENRIETTA.

From what country does it come ?

MRS. F.

The Flowering Ash grows abundantly in Calabria, in Sicily, and upon the highest and most rocky mountains of Greece, but it is from Calabria that we chiefly derive manna. In the months of July and August, a portion of the bark is taken off, about three inches long and two inches wide, and an incision is made in the tree ; the manna which runs out is collected in baskets, and goes by the name of *manna grossa*, but, when it is required very fine, thin straws or bits of shrubs are applied to the incision, so that the manna in running out, runs upon these substances, and is collected in regular tubes, which are termed by the Calabrians *manna in cannoli*.

ESTHER.

At Briançon, in France, manna is said to be

\* *F. rotundifolia*, *excelsior*, and *parviflora*. The larch, fir, orange, walnut, willow, mulberry, and oak, also produce manna.

collected from all kinds of shrubs, and the inhabitants observe, that such summers as produce it, are very fatal to the plants. Their Walnut trees afford annually a considerable quantity, but, if they happen to yield more than ordinary, they usually perish the following winter. From this it appears evident, that manna is the extravasated juice of trees, and that they cannot afford to lose it, and, what confirms this idea is, their secreting so much more when the summers are hot.\*

HENRIETTA.

I cannot think, Esther, where you have learned all these things.

ESTHER.

Chiefly, by reading, Henrietta.

HENRIETTA.

But when do you find time for gaining this kind of information? You are always with us in our morning studies, and walk and amuse yourself with us the rest of the day.

ESTHER.

But, then, I rise early, and have generally an hour or two before breakfast.

\* Medical Botany.



HENRIETTA.

I wish I could do the same; but, I am always so sleepy in the morning.

FREDERICK.

Then I will come and awake you, Henrietta, as the boys do at school, with a jug of cold water.

"You would have royal precedent for that," observed Esther, smiling; "but I cannot recommend the practice."

HENRIETTA.

What do you mean by royal, Esther?

ESTHER.

I allude to an anecdote of Frederick the Great of Prussia, who being anxious to overcome his natural inclination for sleep, which interfered with his plans, first ordered his attendants to awake him at four o'clock, at which hour he intended to leave his bed. They did so; but Frederick was naturally fond of sleep, and therefore always begged for a little more time, which it may easily be supposed he obtained without difficulty; and thus, instead of four, he usually rose at six. In vain he scolded and commanded, for the next morning always found him entreating for more sleep; and where

were the attendants that could resist the requests of a despotic monarch? Finally, determined to vanquish himself and his nature, he commanded the person who called him, under pain of being made a common soldier for life, every morning to put upon his face a towel dipped in cold water. By this violent measure, he conquered his natural love of sleep, and continued to rise at four o'clock till an advanced period of his life.\*

MRS. F.

Thank you, Esther, for the anecdote. None but those who have felt its benefits, can be conscious of half the advantages resulting from a habit of rising early. Indeed, I look upon it, even in a stronger point of view, as a positive obligation enjoined upon us; inasmuch as we are commanded to redeem the time, and not to waste it in idleness and sloth. That it is conducive to health, we all must feel; and, of those persons who have attained an extraordinary age, almost all have been found to have been early risers.† Morning is the season of devotion; and we have the example of Him who is our Lawgiver and our Guide, in favour of this practice, as we find it recorded that He rose up “a great while before it was day,” and went out to pray.‡ If we only

\* Lord Dover's Frederick II.

† Sir J. Sinclair.

‡ St. Mark, chap. (xxxv. ver. 1st.)

just rise from our beds in time to join the family down stairs, the "morning sacrifice" is neglected, and we begin the day by leaving undone that which it is our first duty to perform.

## ESTHER.

Seed, an old divine, beautifully expresses this, in a passage which I will read to you.

"Let us take care that every morning, as soon as we rise, we lay hold on this proper season of address, and offer up to God the first fruits of our thoughts, yet fresh, unsullied, and serene, before a busy swarm of vain images crowd in upon the mind. When the spirits, just refreshed with sleep, are brisk and active, and rejoice, like that sun which ushers in the day, to run their course; when all nature, just awakened into being, from insensibility, pays its early homage; then let us join in the universal chorus, who are the only creatures in the visible creation, capable of knowing to whom it is addressed."

## MRS. F.

Thank you, Esther, these observations are most true, and are beautifully expressed. The more seriously we reflect, the more anxious we become to economize our time, to "catch the transient hour" while yet it may be called our

own. As a wise man has justly observed, "Let us render to ourselves a strict account of every hour, that, having taken advantage of the present time, we may have the less need of the future."<sup>\*</sup>

HENRIETTA.

Well, Aunt, I am sure that I never thought of it before in so serious a light.

MRS. F.

But the mere calculation of how many years are added to an ordinary life, by rising two hours earlier in the morning, were of itself sufficient stimulus for exertion to the reflective mind, which feels how short, time is, for the work of eternity.

HENRIETTA.

I must try to calculate that.

MRS. F.

Two hours a day will make 730 in the year; estimating the human life at "threescore years and ten," that will make 51,100 hours, which reduce into days.

HENRIETTA.

I must do it with my pencil. Stop, that makes 5 years, 304 days, 4 hours.

\* As quoted by Mme. de St. Lambert, in her "Avis d'une Mère à sa Fille," but she does not name the author.

ESTHER.

But, Henrietta, you have estimated your day at twenty-four hours; deducting the time of sleep, you should average it at sixteen, so we shall have a larger result from your calculation.

MARY.

It now makes 8 years, 273 days, and 12 hours.

HENRIETTA.

I had no idea that it would have amounted to so much; such a calculation ought to be sufficient to prevent any one from being a sluggard.

MRS. F.

Do you know Thomson's beautiful lines on early rising beginning,

"Falsely luxurious, will not man awake," &c.

Frederick, get the "Seasons," and read them to us; you will find them in "Summer."

FREDERICK.

Yes, aunt, here is the passage; but look, what a curious little round hole this is, in the cover of the book.

HENRIETTA.

So it is. It is as round and exact as if it had

been pierced with an awl, and it appears to go half through the book.

MRS. F.

This is the work of some little beetles (*Anobium pertinax* and *strictum*), which are most destructive to libraries. I have heard of a public library which was little frequented, in which twenty-seven folio volumes were perforated in a straight line, by the same insect, in such a manner that, by passing a cord through the hole made by it, the twenty-seven volumes might be taken up at once.\* Now, Frederick, begin reading.

\* Kirby and Spence, vol. i.

## CHAPTER X.

## THE GARDEN.

ARUNDO DONAX, PHRAGMITES, ARENARIA. — LAW AGAINST DESTROYING THE REED. — CALAMUS. — QUILL PENS. — REED USED BY THE TURKS. — USES OF THE REED. — INFLUENCE OF THE CHOICE OF FOOD UPON THE CIVILIZATION OF A PEOPLE. — ROSE OF JERICHO. — CRUCIFERÆ. — COLOURS IN FLOWERS. — NIGHT-SCENTED PLANTS. — NEW ZEALAND FLAX. — IRIS TENAX. — LINNÆA. — BELLADONNA AND GUERNSEY LILIES. — MRS. TIGHE'S LINES. — ROSE OF PÆSTUM. — OTTO OF ROSES. — DOG ROSE. — FRUIT EATEN BY DOGS, FOXES, AND LIZARDS. — APPLE OF SODOM. — STOCK SEED. — BLOOD OF ST. JANUARIUS.

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“ Il n'y a point de vicissitudes pour les beautés immuables de la nature, tandis que dans les revolutions sanglantes, les palais, les colonnes de marbre, les statues de bronze, les villes mêmes disparaissent en un instant, la simple fleur des champs, bravant tous ces orages croit, brille et se multiplie toujours.”  
— MADAME DE GENLIS.

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## HENRIETTA.

As I see, aunt, that you are going into the garden, will you have the kindness to tell me the name of a plant?

MRS. F.

With pleasure; which is it?

HENRIETTA.

It is that tall reed, at the end of the lower border.

MRS. F.

You are right in supposing it to be a reed, for it is the *Arundo Donax*, a plant which I brought with me from Italy, where it is extensively cultivated for fences, training the vines, and for innumerable other purposes. I should think, there would be no difficulty in naturalizing it, in this country, for it stands the winter perfectly well, and De Candolle has planted it in the moat at Geneva, where it is very thriving. It is much superior to our common reed (*Arundo Phragmites*), as it is more tough and strong.

ESTHER.

Our common reed is also very useful for thatching and for fences, and it is, in the large plantations or thickets, formed by this plant, that the sedge and reed warblers (*Sylvia Phragmitis* and *arundinacea*) suspend their nests. I once saw one of these nests; it was fastened to the stems of three or four of the adjoining reeds, so that it bent and rocked with every inclination, given by the wind to its support.



MRS. F.

But there is another species of the *Arundo* which is also of the greatest utility, the Mat grass, starr, or bent, as it is often termed (*Arundo arenaria*). This is one of the most valuable grasses for binding the sand of the sea shore, and raising those banks which, in Lancashire, Norfolk, and especially in Holland, are the chief defence of the country against the encroachments of the ocean. These sand banks are of themselves so loose, that in dry weather the sand would be drifted away by the winds, and expose the inhabitants to frequent inundations, but the creeping branching roots of these plants bind it together, and oppose an irresistible barrier to the ocean.

ESTHER.

Is there more than one kind of grass employed?

MRS. F.

Yes, several; the Lyme grass (*Elymus arenarius*) is perhaps one of the best of all plants for this purpose; and the creeping Fescue grass (*Festuca rubra*) and the Sea Carex (*C. arenaria*) also contribute to the same end. The long and cord-like roots of the latter spread into the loose sand to an immense extent, branching at the

extremity, and sending out from the knots many shaggy fibres. Indeed, of such importance is the preservation of these plants, that a town has been overwhelmed with sand, from the cutting down of the trees, and pulling up of the grass in the sand hills; and hence an act was passed in the reign of George II., prohibiting the cutting or destroying of the starr, or bent, under very severe penalties.\* Fortunately, cattle will not touch the *Arundo arenaria*, or they probably would be among its most serious depredators.

## ESTHER.

Of what reed was the calamus of the ancients made?

## MRS. F.

That is not exactly known; they used a reed split like our modern pens for writing upon parchment and papyrus. The style, as you know, was employed for their waxen tablets, and it was prohibited in Italy at different periods, on account of its affording a ready means of revenge to an angry possessor. It was with a stylus that Cassius struck Cæsar, and Caligula caused an obnoxious senator to be massacred with the same weapon. From stylus comes the Italian *stiletto*, which shows the

\* Burns, vol. i.

double purpose to which the instrument was applied.\*

ESTHER.

Quill pens began first to be known in the seventh century, though they arrived very slowly to us.

MRS. F.

The reed pen of the Turks is made from *Arundo orientalis*; but, with regard to the reed, it has been justly observed, that the different uses to which it has been applied, may be said to mark the different periods in the civilization of a people; and the Greeks used to say, that reeds had contributed to subjugate a people, by furnishing arrows; to soften their manners, by the charm of music; and to develope their intelligence, by offering them the instruments proper for the formation of letters.†

ESTHER.

A most just observation.

MRS. F.

It is singular to mark the influence which a plant sometimes exercises in forming the habits of a people.

\* Gell's *Pompeiana*.

† Humboldt's *Voyage*, vol. viii.

## ESTHER.

Yes; the Guarinis, for instance, of the Orinoco, who may be said to be almost parasitic upon the Mauritia palm (*M. flexuosa*,) and who afford an instance of the human race in perhaps the lowest state of degradation, its existence being chained to a single tree, like the insects which can only subsist upon certain parts of a flower. It would appear that Thomson alludes to the Mauritia palm where he says —

“ Wide o’er his isles the branching Oronoque  
Rolls a brown deluge, and the native drives  
To dwell aloft on life-sufficing trees,  
At once his dome, his robe, his food, and arms.”

## MRS. F.

In countries where man lives upon corn, which requires much labour and much ground in order to bring it to perfection, he congregates in villages and towns; but, in South America, the isolated situation of the cabins, affords a striking proof of the fruitfulness of nature. One acre of bananas yields more than twelve times the alimentary substance contained in the same space of corn; thus the richness of the soil, while it multiplies the means of subsistence, retards the progress of civilization, for each family becomes an isolated people, and, consequently, does not make that advance in knowledge which

only takes place when society becomes more numerous, and mankind more intimate.

ESTHER.

This solitary mode of life must foster a strong feeling of independence and liberty?

MRS. F.

Undoubtedly it does; but, as I before remarked, it is curious to observe how a series of physical and moral causes should occasion the choice of alimentary plants to influence, as it does, at the same time, three important objects—the association or isolation of families, the progress or retardment of civilization, and the individual character of the scenery.\*

FREDERICK.

Aunt, what is this small plant in a pot?

MRS. F.

It is the celebrated Rose of Jericho.

HENRIETTA.

I never heard of this plant; will you tell us something about it?

MRS. F.

With pleasure. The Rose of Jericho (*Ana-*

\* Humboldt's Voyage, vol. iii.

*statica hierochuntina*) is, as you see, a dwarf plant, being only from three to four inches high. During the period of vegetation, it is green and soft, but, towards the end of its life, the root and branches assume a ligneous or woody consistency. The branches, thus hardened and dried, curve over each other, so as to form an irregular ball. In this state, the plant is rolled by the winds in the sandy deserts of the East, to which it is indigenous, until chance throws it near some humid spot. Its branches then imbibe the water and spread out, its capsules, closed by the drought, open their valves, and the seeds sow themselves where they find the moisture necessary to their vegetation.

ESTHER.

What a beautiful provision of Providence !

MRS. F.

This hygroscopic —

HENRIETTA.

Oh ! please, Aunt, stop and tell me the meaning of that word.

MRS. F.

It is from the Greek, *hugros* moist, and *skopeo* to view ; that is, the property of perceiving

moisture. You probably have seen the instrument called a hygrometer, which is constructed to measure the degree of moisture in the atmosphere. But, to return to our subject, this hygroscopic nature is not, it appears, peculiar to the rose of Jericho, but is also possessed by other plants; and the same quality has been lately discovered in the capsule of the *Cœnothera*, or Evening primrose. Many ridiculous stories have been circulated respecting the Rose of Jericho, but they are all destitute of foundation, except in the curious property which I have just related.

MARY.:

Is the plant annual?

ESTHER.

Yes. It bears small white flowers, and is one of the family of Cruciferæ.

MRS. F.

The flowers of almost all this family are either white or yellow. The pretty annual *Heliophila* is, I believe, the only exotic genus which is blue; and the *Braya alpina*, and *Arabis cœrulea* of the Alps, the only two blue species which are natives of Europe.

\* Art. Jérose, in Dict. Sciences Naturelles.

HENRIETTA.

But do not yellow flowers sometimes have blue varieties ?

MRS. F.

Never. It is an established fact, with regard to the colours of flowers, that an originally yellow flower may alter to rose, red, or white, but never to blue; and *vice versa*, a blue flower will never, by cultivation, become yellow.\*

HENRIETTA.

But there is a yellow and a blue iris ?

MRS. F.

True : but they are *distinct* species, and it is of varieties of the *same* species that we are now speaking ; such as, for instance, the little *Polygala* (*P. vulgaris*), which we find of white, lilac, purple, and blue of various shades, from the light to the very dark.

ESTHER.

It is a singular fact †, that the cruciform plants are almost entirely wanting under the tropics, except in the higher regions, which are much elevated above the level of the sea.

\* De Candolle on Cruciferae.

† Observed by Adanson.



MRS. F.

In talking of the colours of Cruciferæ, we did not allude to the dull, dirty white and lilac hue which exists among the night-scented flowers of this family, such as the night-scented Stock (*Matthiola tristis*) and Rocket (*Hesperis tristis*), both of which expand in the evening, and shed a sweet perfume during the night.

ESTHER.

But most flowers of this colour, have the same smell, and the same mode of flowering, such as *Pelargonium* and *Gladiolus tristis*.

MRS. F.

Here is a plant which is likely to become of some importance, if its cultivation succeeds in Ireland.

HENRIETTA.

What is it?

MRS. F.

The New Zealand flax (*Phormium tenax*), which, unlike other flax-bearing plants, produces the flax from the fibres of its leaves, instead of from the stalk. It grows chiefly in moist and marshy soils, and attains from five to seven feet in height. In New Zealand, the plant is held sacred by the natives; but pro-

bably only from its domestic utility, as it is not employed in any of their ceremonies. The New Zealanders are well skilled in the mode of preparing it; the women separate the silky fibre from the leaf, by means of a shell (said to be of the oyster kind), and convert it into netting, clothing, fishing lines, &c. If the cultivation of it, in this country, could ever be effected, and a sufficient quantity grown to supply us with cordage, it would lead to great national advantages, by making us independent of the Russian trade for this article.

ESTHER.

Has it been yet used for cordage ?

MRS. F.

It has been manufactured in New Holland, and used by the colonial whalers for their whale lines; and recent experiments prove how eminently it is calculated for that purpose.\* It appears that it is the strongest of all vegetable fibre; compared with others, it is in the following proportion. The fibre of *Agave Americana* breaks under a weight of 7; Flax, of  $11\frac{1}{2}$ ; Hemp, of  $16\frac{3}{4}$ ; Phormium, of  $23\frac{1}{11}$ ; and Silk, of 24. It possesses also another advantage, which is, that, from its brilliant whiteness and satin-like appearance, it does not require to un-

\* Bennett's Wanderings in New South Wales.

dergo the process of bleaching, by which the quality of hemp and flax is materially injured. Another plant has been recommended as better suited to our climate than the New Zealand flax, viz. the *Iris tenax*, a plant of California, where the native tribes make a fine cord from the fibres of the leaves, of which they weave their fishing nets; a purpose for which it is admirable suited, on account of its buoyancy, strength, and durability. Snares are made of it, for deer and bears, of such strength, that one not thicker than a sixteen-thread line is sufficient to strangle the great stag of California (*Cervus Alces*), one of the most powerful animals of its tribe.\*

## ESTHER.

Oh! Mamma, here is our favourite *Linnæa borealis* in bloom. Look at its delicate little pink flowers, growing in pairs, on opposite sides of the stem: and, what a pleasant smell they have!

## MRS. F.

Yes; I have read that at Drontheim, and the neighbouring parts, they are made into tea for medicinal purposes. Here, Henrietta, is another instance of the modesty of the great and learned.

\* Lindley in Botanical Register.

Linnaeus, with the whole kingdom of Flora before him, chose this humble plant to perpetuate his name, and bore it over his helmet as a crest.\*

HENRIETTA.

Thank you, Aunt. How beautiful your Belladonna lilies are ! and here are the Guernsey lilies also.

MRS. F.

Yes ; the Belladonna, I find perfectly hardy. I leave it in the open ground all the winter, and it flowers finer every year. The Guernsey never blooms with us the second year. This lily is said to have been brought from Japan in a ship which was wrecked on the coast of Guernsey, whence it has been naturalized in that Island.

ESTHER.

What beautiful lines those are of Mrs. Tighe upon "the Lily, an emblem of Christian hope !" They begin —

"How wither'd, faded, seems the form  
Of yon obscure unsightly root," &c.

I do not attempt to repeat them, for I cannot recollect them sufficiently, as the poem is rather long.

\* Beckmann's History of Inventions.

MRS. F.

Frederick, you should know this rose, for it is of classic interest. It is the Pæstan rose (*Rosa sempervirens*), which still grows at Pæstum, and I have gathered it myself among the ruins of the three temples.

MARY.

Which is the species from which the otto of roses is made ?

MRS. F.

Otto of roses is made from the petals of the hundred-leaved rose (*Rosa centifolia*), which species is also used exclusively in the distillation of rose water. The genuine otto of roses is not, it is said, prepared by distillation, but by putting a quantity of carefully picked rose leaves into a clean jar or cask, with just sufficient water to cover them. The vessel is then set in the sun for a few days, and in about a week the otto (a butyraceous oil) collects in the form of a scum upon the surface, and is removed by a piece of cotton.\*

Roses are also used in medicine. Confection of roses is made of the petals of the red rose (*Rosa gallica*), and Conserve of hips from the pulp of the berries of the Dog-rose (*Rosa canina*).

\* Brande's Manual of Pharmacy.

ESTHER.

I have heard it said, that the dog-rose is so called from its fruit being eaten by dogs.

MRS. F.

So it is asserted; and certainly the rose being called by the same name in English, French, and Italian, and the hips being also, I am told, designated, among the Tartars, by a name signifying dog-fruit, seem to bear out the assertion: at the same time, I must say, I never heard of dogs eating them.

FREDERICK.

But, I have, Aunt; for I have given the hips of the dog-rose to dogs, and they do not refuse to eat them, though they did not seem to care much about them.

MRS. F.

That these animals are often fond of fruit, I know by experience; for I have myself seen a dog gather the gooseberries from a gooseberry bush, and have heard of another who had a similar taste. House dogs will eat strawberries, grapes, and most kinds of fruits.

ESTHER.

That foxes will eat grapes, we have the testi-

mony of Scripture, where Solomon speaks of the "little foxes that spoil the vines\*;" and most travellers mention the depredations committed by these animals among the grapes. Jackals also, will destroy whole vineyards and gardens of cucumbers; and the "cottage in the vineyard," mentioned by Isaiah †, was doubtless a shelter for the watchmen, who were obliged to guard the vines from these nightly depredators.

MRS. F.

The Greek writers also mention the havoc committed by these animals; and Galen tells us, that the hunters used to eat the foxes in the autumn, after they had grown fat by feeding upon the grapes.

ESTHER.

And Theocritus says, complaining of their depredations,

"I hate those brush-tailed foxes, that each night  
Spoil Micon's vineyards with their deadly bite."

MRS. F.

The lizard is a great depredator of the grapes in the island of Madeira, where rats

\* Solomon's Song, ii. 15.

† Isaiah, i. 8.

and wasps are also very destructive. The lizard swarms in Madeira, and a traveller mentions a simple expedient by which numbers were caught. It was merely this: a brass kettle was placed upon the ground, into which the lizards fell when running about in quest of food. The smooth sides of the kettle prevented them from escaping, and thus numbers were taken without any difficulty. The same writer mentions a circumstance which refers to our original conversation respecting the dogs. It is this: that in the month of September, when the vintage begins, it is necessary to tie up all the dogs, these animals being so fond of grapes, that it is requisite to exclude them from the vineyards.

ESTHER.

Mamma, this *Solanum* is at last in bloom.

MRS. F.

So it is: it is interesting to me, because I gathered the seed at Pæstum; and this *Solanum* owes its specific name (*Sodomeum*) to its being supposed to produce the fabled apples of Sodom or of the Dead Sea, which were fair without, and within ashes and bitterness. This plant may well merit such a designation; for the fruit is round, of a bright orange colour, pleasing to the eye, but



within dry and husky; and therefore no unfit representative of

— “The apples on the Dead Sea’s shore,  
All ashes to the taste.” \*

Or of the

“Dead Sea fruits, that tempt the eye,  
But turn to ashes on the lips.” †

ESTHER.

Milton also alludes to the apples of the Dead Sea, when he says,

— “Instead of fruit,  
Chew’d bitter ashes.” ‡

And Josephus mentions them, in his account of the Lake Asphaltites, as appearing fit to be eaten, but, if plucked with the hand, they dissolved into smoke and ashes.

HENRIETTA.

Aunt, how very fine your stocks are.

MRS. F.

Yes, they are very beautiful. I have the seed from Hamburgh.

\* Childe Harold, iii. 34.

† Moore.

‡ Paradise Lost, book x.

ESTHER.

I have heard that the great secret in the superiority of the German seed is, that the gardeners keep it some years before they sell it.

HENRIETTA.

But how would that apply ?

ESTHER.

In this manner ; that by long keeping, the cotyledons, or seed-leaves, destined to nourish the infant plant, become dried and injured, and give the less support to it. This checking the vegetation, restrains the over-luxuriancy of the plant, which, instead of expending itself in leaves, reserves its energies for the perfecting of the flower.

MRS. F.

Here is an *Onosma*, which is interesting, because I have read that it is by some chemical preparation of this plant that the priests delude the Neapolitans, by the supposed liquefaction of the blood of St. Januarius.

ESTHER.

In what manner, Mamma ?

MRS. F.

You are aware that, in a public annual cere-

mony at Naples, the blood of the saint becomes spontaneously liquefied, and rises bubbling to the top of the bottle which contains it. These illusions may be effected, by reddening sulphuric ether with orchanet (*Onosma*), and then saturating the tincture with spermaceti; this preparation is solid at ten degrees above the freezing point, and melts and boils at twenty degrees. To raise it to the latter temperature, it is sufficient to hold in the hand for a few minutes the phial which contains it.\*

MARY.

But do the priests really attempt to impose upon the people by such a deception?

MRS. F.

Indeed they do. I once witnessed the ceremony myself; and it is melancholy to see the eagerness with which the Neapolitans crowd round the altar and kiss this relic of the saint, which is enclosed in a richly chased case, with a glass on each side of it, something like a double watch-case, the bottle containing the blood, being placed in the centre, and viewed through the glasses.

HENRIETTA.

Poor creatures! how shocking it is, to think of their superstition.

\* *Salverte, des Sciences Occultes des Anciens.*

MRS. F.

But it should excite our sorrow rather than our indignation, for "they do err, not knowing Scriptures."

ESTHER.

As Keble beautifully expresses it, in one of his hymns \*, alluding to the Roman and Protestant Churches,—

"She mourns that tender hearts should bend  
Before a meaner shrine,  
And upon saint or angel spend  
The love that should be Thine.

\* \* \* \* \*

"And O! by all the pangs and fears  
Fraternal spirits know,  
When for an elder's shame the tears  
Of wakeful anguish flow,

"Speak gently of our sister's fall;  
Who knows but gentle love  
May win her at our patient call,  
The surer way to prove."

MRS. F.

Let such reflections, therefore, rather excite in our mind the most lively feelings of gratitude that *our* lot is cast in a better land, in one where

\* Gunpowder Treason.

**“the true light shineth,” and which, alike removed from Pagan ignorance and Romish errors, and gifted with every facility of religious instruction, may be truly designated as “The vineyard of the Lord.”**

## CHAPTER XI.

## ON LICHENS.

LICHENS. — OXALIC ACID. — TRIPE DE ROCHE. — ICELAND MOSS.  
 — REINDEER MOSS. — CUDBEAR. — PERELLE. — ORCHILL. —  
 LITMUS. — COCHINEAL. — CARMINE, &c. — TYRIAN PURPLE.  
 — MUREX AND BUCCINUM. — ACCOUNT OF THE DYE. —  
 FABLE OF ITS DISCOVERY. — ROYAL COLOUR. — HYACIN-  
 THINE CURLS. — MARTAGON LILY. — MOLLUSCA. — FORMA-  
 TION OF SHELLS. — SEPIA. — INDIAN INK. — POLYPUS AND  
 KRAKEN. — EIGHT-ARMED CUTTLEFISH. — NAUTILUS. —  
 CHAMA. — PINNA AND PINNOPHYLAX.

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“ Rocks sublime

To human art a sportive semblance bore,  
 And yellow lichens colour'd all the clime  
 Like moonlight battlements and towers decay'd by time.”

CAMPBELL.

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## ESTHER.

MAMMA, when you were telling us, the other day, the properties of the different *Algæ*, you were so kind as to promise to describe the uses of the other orders of Cryptogamia.

MRS. F.

That I will, with pleasure, though my cryptogamic knowledge is so limited that I cannot, I fear, give you so full an account as I could wish. However, suppose we select the *Lichens* for to-day's conversation.

ESTHER.

Thank you.

MRS. F.

In the arts, and in domestic economy, many of this order are most useful. A species of one genus (*Variolaria faginea*) contains oxalic acid so largely, that it is now employed in France on an extensive scale for its production.\* Then, as an article of food, the lichens produce the *Tripe de Roche* (*Gyrophora* genus), which is so much eaten by the Canadian hunters, and which proved so serviceable to Sir John Franklin and his brave companions during a season of want to which few have been subjected; but it is very bitter and nauseous, and can only be employed in the absence of more salutary food.

ESTHER.

Is not the Iceland moss also a lichen?

\* Hooker, in vol. v. of English Flora, from which much of this is taken.

MRS. F.

Yes ; the Iceland moss (*Cetraria Islandica*), which we procure principally from Norway and Iceland, is also abundant in certain districts in Scotland, but it has never been yet collected there, as an article of commerce. Independent of its medicinal use in coughs and consumptions, it is also gathered in Iceland, in immense quantities, as an article of common food. The bitter quality being first extracted by steeping in water, the lichen is dried, reduced to powder, and made into a cake ; or it is boiled and eaten with milk, and eaten with thankfulness too, by the poor natives, who confess “ that a bountiful Providence sends them bread out of the very stones.” The reindeer moss (*Cladonia rangiferina*) must also be enumerated among the most valuable of the lichens. It is an inhabitant of almost every part of the world, even of the tropics, but in the colder and arctic regions, it is most abundant. It is this which, for the greater part of the year, and especially in winter, is the support of the vast herds of reindeer wherein consists all the wealth of the Laplander. No vegetable, Linnæus tells us, grows throughout Lapland in such abundance as this, especially in woods of scattered pines, where, for very many miles together, the surface of the sterile soil is covered with it, as with



snow. On the destruction of forests by fire, where no other plant will find nutriment, this lichen springs up and flourishes, and, after a few years, acquires its full size. Here the reindeer are pastured; and whatever may be the depth of the snow during the long winters of that climate, these creatures have the power of penetrating it, and obtaining their necessary food, by scraping away the snow with their hoofs. The Laplander also feeds his reindeer upon *Alectoria* and other succulent lichens, which hang in long filaments from the trees, which he cuts down, in order that the reindeer may more easily get at their favourite food. There now remains for me to mention one other use to which the lichens are applied, and that is, dyeing, where the colouring matter, in which they abound, is employed to great advantage. One genus (*Evernia prunastri*) was used during the war (instead of gum) in calico printing, but it afterwards fell into disuse, as a very inferior substitute.

ESTHER.

Is not the Cudbear, which is used to colour silk stockings, a lichen?

MRS. F.

Yes; *Lecanora tartarea* is its botanical appellation.

FREDERICK.

But why is it called *cudbear*?

MRS. F.

From a Mr. Cuthbert, who first brought it into use. It is employed to produce a purple for dyeing woollen yarn; and is used for that purpose, to a great extent, at Glasgow. It grows in Sicily and Norway, and from the latter country, it is mostly imported; but it is also abundant in parts of Scotland, and many an industrious Highlander gains a living by scraping off this lichen with an iron hoop, and sending it to the Glasgow market. The French *Perelle*, which comes from Auvergne and other parts of France, is a kindred species of the same genus (*Lecanora Parella*), but it produces a dye far superior to cudbear, and quite equal to that of Archill (*Roccella tinctoria*), to which we are now come.\*

FREDERICK.

That too is a singular name.

MRS. F.

Its several appellations of Roccella, Orseille, Archill, Orchill, are derived from a Florentine

\* Several species of *Parmelia* are also collected by the Scotch peasantry to dye woollen stuffs a dirty purple.

family of the *Oricellarii*, *Rucellarii*, or *Rucellai*, one of whom carried on a considerable trade in the Levant, and returning with great wealth to Florence, first made known in Europe the art of dyeing with this plant, which was exported from the islands of the Archipelago. This interesting lichen yields the most valuable dye of all this tribe; it is found on steep rocks of the Scilly Islands, and in the south of England, but it is far more abundantly produced in warm climates, and particularly in the Cape de Verd and Canary Islands, whence it has also been called the Canary weed, and where it was discovered towards the commencement of the last century, and soon placed among the royal monopolies of the Spanish crown. Its value quickly excited the attention of the Portuguese, who collected it without restriction, in the Cape de Verd Islands, Madeira, Porto Santo, and the Azores, until the Jesuits, in 1730, procured from John V. the privilege of collecting it. The Crown afterwards assumed the right to itself, and, at one time, it was considered to be the Queen of Portugal's pin-money\*; but it was afterwards ceded to a mercantile company, until, by its bad management, the commerce had so much declined that the Government again took it into its own

\* Bowdich's Madeira.

hands in 1790, and now they only allow it to be sent to Lisbon. It grows in the crevices of steep rocks, in the interior of the islands. The finest is collected in St. Antonio, where it grows in some places so inaccessible as only to be procured by lowering the gatherer down with ropes. But the great consumption of it of late years has caused the finest quality of it to become scarce.\*

HENRIETTA.

What is it chiefly used for?

MRS. F.

The English blue broad-cloths are first dyed with Orchill, which gives their peculiar lustre and purple tint, when viewed in a certain light; and, it may also be useful to you to know, that Orchill is manufactured, by the Dutch, into a paste called *Litmus*, of which you will often hear in chemical experiments. When infused in water, or when paper is stained with Litmus, it is employed as the most delicate test for detecting the presence of acids and alkalis; — the acid turns it red, the alkali restores it to its original blue colour. Orchill is also used for dyeing silk and ribands; but its blue, though beautiful, is

\* Canary orchill is most esteemed, then that from Madeira, and the Barbary is least valued of all.

perishable. Some writers have endeavoured to prove, that the celebrated Tyrian purple was produced from this substance, the lichen being abundant on the Phœnician coast ; but we have full evidence to the contrary.

## ESTHER.

Might not the purple have been made from Cochineal ?

## MRS. F.

No; the ancients were unacquainted with this insect, although they employed that of the Evergreen oak or *Ilex* \*, called by the Arabians *kermes*, whence *karmasinus*, the French *cramoisi*, and our *crimson* and *carmine*. The *kermes* was used to dye scarlet, and was known to the Egyptians, in the time of Moses, and to the Phœnicians, at even an earlier period. The latter people termed it *Thola* or *Tola*, the Greeks *Coccus* ; from which name, and from the epithet *vermiculatum* (given to it, when it was ascertained to be the produce of a *worm*), have sprung the Latin *coccineus*, the French *vermeil*, and our *cochineal* and *vermilion*. †

\* *Coccus ilicis*, i. e. of the *ilex*.

† Kirby and Spence ; Dictionnaire des Sciences Naturelles, &c.

FREDERICK.

What does our cochineal come from ?

MRS. F.

It is an insect called *Coccus cacti*, or of the Cactus, because it is parasitical upon that family of plants. It only exists in Mexico, where the Spaniards found it employed as a dye, on their arrival in 1518. It has ever since been one of the greatest sources of wealth, and de Humboldt estimates the value of its annual exportation at 500,000*l*. Although the East India Company have offered 60,000*l*. to any one who shall introduce the insect into India, they have hitherto been unable to procure any, except the wild species from Brazil. But, we have widely digressed from the Tyrian purple, which, I was about to tell you, we know to have been produced by a fish.

HENRIETTA.

On what authority ?

MRS. F.

Upon that of Pliny, who states that there were two species of mollusca which afforded it; the one a tolerably large animal, which Linnæus supposes to have been *Murex trunculus* and Cuvier *Murex brandarium*. You all of you know the Murex ?

ESTHER.

They are what we call the *Rock shells*.

MRS. F.

The other animal employed, was a *Buccinum*.

ESTHER.

That is the genus which we term *Whelks*.

MRS. F.

Exactly so : which species was used, is not exactly known. Linnæus assigns the distinction to *Buccinum lapillus*, which is one of the commonest of our British shells ; but many of this family afford a colouring matter, as do several other of the univalve shells, — such as *Helix Janthina*, which, when touched, emits a purple liquor that tinges the sea around it. This *Buccinum* produced a colour resembling the *Murex*, though not precisely the same. The shells are said to have been taken by an ingenious contrivance ; the nets were baited with mussels which were half dead, and their shells consequently partly open ; the fish pushed its trunk into the shell in order to draw out its prey, upon which the mussel closed entirely, and thus detained its prisoner.

ESTHER.

Were there not several tints of this dye?

MRS. F.

Yes; the various kinds were produced by using different proportions of the two fish. To obtain the colour called *amethyst*, we read that 100lbs. of the *purple* and 200lbs. of the *Buccinum* were mixed together, and this enormous quantity of fish only served to dye fifty pounds of wool.

ESTHER.

How was that tint mixed which was called the Tyrian purple?

MRS. F.

The wool was first dipped into the *Murex* and then into the *Buccinum*; and by this means, was obtained the finest colour, which appears, from what we read, to have had a kind of *shot* appearance, blackish when viewed in front, but brilliant when seen on the side. Frederick, you may recollect that Horace alludes to the double dyeing of the purple, when he says (2d Book, 16th Ode), as rendered by Francis in his translation :

“ Thy robes the twice-dyed purple stains.”

ESTHER.

It was the custom to crush the *Murex* as



soon as taken, for, if kept, the animal ejected its purple dye.

MRS. F.

Aristotle tells us that a single shell sold for about \$L; but, as it appears, that only a single drop of the dye was produced from each animal, it is not surprising that it was so dear. The Murex is still used, in a small way, for the purpose of dyeing, in India and Armenia. Vast heaps of fragments of shells have been found at Tarentum, which are supposed to be those from which the purple has been extracted, and which would seem to indicate that place, as one where it was prepared.

MARY.

How came the ancients to discover that these fish produced a dye?

MRS. F.

Like most of their discoveries, they have assigned to it a fabulous origin.

FREDERICK.

We should like, Aunt, to hear it.

MRS. F.

They say that the dog of Hercules having

stained its mouth by eating the animal of a shell which it picked up, on the sea shore, Tyras was so struck with the beauty of the colour, that she declared she would not see Hercules, until he had procured her a robe of that hue. Hercules therefore collected all the shells which he could find, and dyed a garment of the purple. According to this account, the discovery is placed at about 1500 years before the birth of our Saviour ; but there are various fables attached to the discovery of this dye, some assigning it to Phœnix, second king of Tyre, who lived about B. C. 500 ; but all these accounts are, we must conclude, enveloped in fiction, though all concur in attributing to accident the original discovery. In all ages purple has been a royal colour. Moses used purple stuffs for the furniture of the tabernacle, and for the dress of the high priests. Many of the pagans believed that the dye had a peculiar virtue, and was capable of appeasing the wrath of their gods. The Babylonians gave purple habits to their idols ; the kings of Phœnicia were always attired in purple ; and the Roman emperors took to themselves the exclusive privilege of wearing this colour, by an imperial decree, by which its use was restricted, under pain of death, to the emperor. Hence the expression of “ assuming the purple ” became synonymous with

that of ascending the throne. The emperors appointed officers to superintend the Phœnician manufactures, and a pound of Tyrian dye sold, in the reign of Augustus, for a sum almost equal to 36*l.* of our present money.

MARY.

What a beautiful rich colour it must have been.

MRS. F.

It was undoubtedly the finest then known; but, after all, the best colours that could be made by the ancients, were but poor and dingy, compared with those which the moderns, by the assistance of chemistry, are able to produce. Pliny says that the Tyrian purple resembled in colour congealed blood.

FREDERICK.

Then that is the reason why Homer and other poets talk so much of purple blood, — an expression which I never could understand, any more than I can that of “hyacinthine locks;” for no hyacinth is the colour of the human hair.

MRS. F.

According to Lord Byron, the term is common enough among the Eastern, as well as the

Greek poets; but the expression is not, as you imagine, derived from the colour of the flower, but from the form of its petals, which are curled outwards, and may be thought to bear some fancied resemblance to the curls of the hair.

HENRIETTA.

Thank you, Aunt, I am sure that we never should have thought of such an explanation.

ESTHER.

Pray, Mamma, is not the red Martagon Lily supposed by many to have been the hyacinth of ancient mythology.

MRS. F.

You are right, Esther; and let us hear from you, the reasons for this conclusion.

ESTHER.

According to the fable, when Apollo changed the blood of Hyacinthus into a flower, he inscribed the characters *Ai* upon its petals. Now the flowers of our hyacinth (independent of the colour being different from that assigned to the hyacinth of the ancients) has no spots whatever upon the petals, whereas, on the other hand, by some assistance from the imagination, these letters may be traced in the dark, blackish

spots of the Martagon lily\*, with which, in other respects, the description of the ancient Hyacinth coincides, it being described of an iron red or Roman purple, which is the colour of the common Martagon; and the curling of the petals, being common to both flowers, there can be no objection on that point.

## MARY.

I did not like to interrupt you just now; but what did you mean, Mamma, by calling the shells which produce the purple *mollusca*?

## MRS. F.

It was the animal they contain, which I so called, not the shell, which is merely its covering. Mollusca form one of Cuvier's four great divisions† of the animal kingdom, and are defined to be without a skeleton, with white blood, their muscles attached only to their skin, which forms a soft retractile covering, on which, in many species, are produced those strong plates which we call shells.

## HENRIETTA.

Then this is conchology.

\* Martyn.

† He divides the animal kingdom into vertebrated, mollusca, articulated, and radiated animals.

MRS. F.

Not so, for conchology implies the knowledge of shells; but all mollusca have not this kind of covering. Those which have, are called testaceous, from the Latin *testa*, a shell. Conchology, therefore, may be defined as the classification of the testaceous mollusca, according to the forms of their shells, and is consequently a very distinct science from that of the knowledge of molluscous animals.

MARY.

Pray, mamma, what are shells made of?

•

MRS. F.

Like the bones of vertebrated animals, they are composed of a calcareous substance, almost as heavy and as hard as marble, which substance is produced in layers. In proportion as the animal increases in age, it forms a new layer on the inner surface of the shell, which extending beyond the edge of the preceding layer, increases the size of the shell in length, breadth, and thickness.

HENRIETTA.

But how can naturalists ascertain this point?

MRS. F.

By comparing the shells of the same species of animals of different ages; as for example, the mussel, in which the old shell is seen to be composed of many distinct layers; whereas that of the young animal only consists at first of one stratum, not soft and gelatinous, but equally firm as the old shell, though, of course, more fragile on account of its thinness.

ESTHER.

Then slugs and the cuttle fish, for instance, are both mollusca, although they would not be mentioned in a work on conchology.

MRS. F.

Yes; but the last contain a calcareous substance within the flesh of the back, which may fairly be termed an internal shell.\*

HENRIETTA.

Is that what we call cuttle-bone?

MRS. F.

It is: this substance being friable in its struc-

\* To this the bone of the Calmar (*Sepia loligo*) bears some resemblance. We find a horny, hollow, flat shell in the *Aplysia*, and the slug also has a small internal shell.

ture, is used for polishing; and I do not know whether you observed that Mrs. Clifford gives it to her young canary birds to sharpen their beaks. The cuttle-fish are enabled to throw out an inky liquor, in order to form a thick cloud around them, by means of which, they conceal themselves from their enemies; or, as some suppose, lie in ambush for their prey. You all know what is made of this liquor?

HENRIETTA.

The colour called Sepia, which we use in drawing.

FREDERICK.

And also Indian Ink.

MRS. F.

Of this, we are not so sure, Frederick. The present opinion is, that Indian ink is prepared by the Chinese from lamp-black, mixed with gum, and rendered aromatic by some, as yet, unascertained substance. Sepia seems sometimes to have been used as ink by the ancients; but I believe, that they more frequently employed charcoal. The ink of the ancients was more easily obliterated than ours, as appears from a story of Caligula, who is said to have forced those who wrote any thing against him



to lick it out with their tongues.\* In the Museum at Naples, is a pentagonal inkstand, not much unlike those in modern use. But to return to the Sepia; the flesh of these animals was much esteemed by the ancients, and is still eaten in Italy.

HENRIETTA.

But it cannot be good.

MRS. F.

On the contrary, it is particularly delicate. It is cut into thin strips and fried, when it much resembles lobster; we used often to eat it at Naples, and liked it very much†; though I confess, that were we to have seen it, before it was cooked, we might have felt less disposed to taste it.

HENRIETTA.

I should think so, Aunt; for the cuttle-fish is such a very disagreeable-looking animal that I could never make up my mind to eat it.

MARY.

What is it like?

HENRIETTA.

I once saw one, when we were staying by the

\* Sir William Gell.

† Several of this genus are eaten in Italy.

sea-side. It is about a foot long, of a soft, white substance, and its mouth is placed in the centre of its feet, and is exactly like the beak of a parrot.

MRS. F.

With this powerful weapon, the *Sepia* destroy a great many fish and crustacea. They belong to the class *Cephalopoda* of Cuvier, which is remarkable, as being the only class of Mollusca which possess the organ of hearing.

HENRIETTA.

What, have not all Mollusca the five senses?

MRS. F.

No; they only possess those of taste and sight, except in this class, which has the additional faculty of hearing. The Nautilus and Argonaut belong to the same class; but I wish to know, if any of you have heard of the eight-armed cuttle fish (*Sepia octopodia*), the celebrated Polypus of the ancients, and by some authors, supposed to be the animal which they called the Kraken?

HENRIETTA.

But the Kraken is the wonderful American sea monster.

MRS. F.

True; the story has been revived by American navigators. Pliny gives an account of an animal which ravaged the coasts of Boetica. It used to leave the sea, had arms thirty feet long, and was at last killed by men and dogs, and sent as a present to Lucullus. Ælian also, is equally marvellous, in his stories about this animal.

FREDERICK.

But I suppose that all this is quite fabulous?

MRS. F.

Perhaps not entirely so, for such tales are seldom invented without some foundation. The ancient accounts of the Polypus, the stories of the Kraken, and the reports of the Norwegian Sea Serpent, all tend to prove the existence of some enormously large animal in the Indian and Northern seas. To none can the description better apply, than to the *Sepia octopodia*, which is furnished with arms six times longer than its body, and is known to attain so great a size, and at the same time, to possess so much strength, as only to be approached with caution. In the Indian seas, where Pennant says he has been assured that they have been found with arms nine fathoms (54 feet) long, the islanders,

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when sailing in their narrow canoes, are said always to go provided with hatchets, in order to cut off the arms of these animals, which they throw on each side of the canoe, and by this means, drag it under water and sink it. Expert swimmers have often perished, by the animal entwining its arms around them, and thus drawing them under water. A northern navigator, Captain Magnus Deus, is said to have lost three men in this manner: but for the veracity of these statements, we do not pretend to vouch; we only allude to them, because they go to prove, that some enormous Cephalopoda is frequently met with, which credulous navigators have readily transformed into this extraordinary monster.\*

## ESTHER.

Did you not say, Mamma, that the Paper Nautilus (*Argonauta argo*) belongs to the family of Cephalopoda?

## MRS. F.

I did say so. I suppose you have all seen pictures of this animal skimming on the surface of the water, erecting its two largest tentacula (or arms) for sails, employing the other six as oars,

\* Dictionnaire des Sciences Naturelles, &c.

and its shell as a boat? Nothing, I should think, can present a prettier sight. In fine weather, they are to be seen in troops in the Mediterranean, but descend immediately, on the approach of rough weather, or of danger. In order to effect this, the Nautilus draws in water to add to its weight, and thus is enabled to sink into the depths of the ocean. When it wants to re-ascend, it diminishes the specific gravity of its shell by ejecting the water, and thus again rises to the surface of the sea. The *Argonauta argo* does not appear to adhere to its shell, whence many naturalists have imagined that the animal which inhabits it, is parasitic, occupying, like the hermit crab (*Cancer Bernhardus*), the shell of another. But, as this animal is always found in this shell, and no other has ever been seen to inhabit it, although the shell is common, and often seen on the surface of the sea, we have every reason to deem this opinion to be highly problematic.

MARY.

Pray, Mamma, what is that enormous shell which Mrs. Clifford has in her hothouse to hold some of the smaller kinds of water plants?

MRS. F.

It is the *Chama gigas*, a shell which some-

times attains an immense size, and is, I believe, the largest species known. The flesh of the animal is eatable, but is very hard. Several individuals have been found which weighed more than 300 lbs. The French call these shells *Bénitiers*, because they are used to hold the holy water; and there are two in the church of St. Sulpice in Paris (where they are applied to that purpose), which were presented to Francis I. by the republic of Venice. These shells are furnished with a byssus or beard, by which they are suspended to the rocks, and which is so thick and tenacious, as only to be separated with a hatchet.

ESTHER.

Does it resemble that of the Pinna?

MRS. F.

It is not so silky, for the byssus of the Pinna (*Pinna nobilis*) is woven into gloves, &c.

ESTHER.

How is it prepared for that purpose?

MRS. F.

The byssus (which will not take any dye) being cut, is twice soaked in tepid water, and once in soap and water, and is then spread out

to dry, in some cool and shady place. While it is yet moist, it is rubbed softly and separated with the hand, and then spread out again. When thoroughly freed from moisture, it is next drawn through a wide-toothed comb, and afterwards through one with finer and closer teeth. The more common silk is thus prepared; but, that which is destined for finer works, is afterwards drawn through closer toothed combs or cards. It is next spun, two or three of the threads being mixed with one of real silk, and then knitted. When knitted, it is again washed in clear water mixed with lemon juice, is then gently beaten between the hands, and afterwards smoothed with a warm iron.

HENRIETTA.

How does the Pinna spin its byssus?

MRS. F.

As all other byssus-spinning mollusca, viz. by means of its foot; the spinnerets of the spider are in its tail, those of the silk-worm and other spinning moths in the mouth; Providence having beautifully arranged their situation in each as is best adapted to the wants and convenience of the animal.

ESTHER.

Is the anecdote about the Pinna, and its para-

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site, true, which I have read in extracts from Dr. Darwin's poems?

MRS. F.

And which is the same as the Pinnophylax of Pliny. No; I believe it to be fabulous, excepting so far, that small crustacea, indeed both crabs and shrimps, will find their way into the shell of the Pinna, the Mussel, or the Whelk; not with any view of hurting the animal, but in order to defend themselves, especially when their crust is soft, and they are the more exposed to injury from the attacks of their enemies.



## CHAPTER XII.

## THE FOOD OF VARIOUS NATIONS.

EARTH EATEN BY THE OTTOMACOS, PEOPLE OF NEW GUINEA,  
 NEW CALEDONIA, PERU, JAVA, ETC. — STEINBUTTER. —  
 GIRDLE OF FAMINE. — ERMINE HUNTERS. — GUM ARABIC. —  
 TARTAR'S CURD. — FISH-BREAD OF BABYLONIANS AND SOUTH  
 AMERICANS. — FOOD OF ANTS, BEES, SPIDERS, LOCUSTS, AND  
 BOAS — BUGONG MOTH. — GOAT MOTH. — PALM WORMS. —  
 CHINESE. — SHARK'S FINS. — NICHE DE MER. — SNAILS. — ES-  
 CARGATOIRES. — SIR K. DIGNY. — ISRAELITES. — HYBERNA-  
 TION OF THE SNAIL. — SAW-DUST. — SHELL OF THE SNAIL.

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“ Requiring each to gratify his taste  
 With different food.”

FRANCIS'S HORACE.

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MRS. F.

I HAVE just been reading a curious account of  
 the Ottomacos, the earth-eating tribe of the  
 Orinoco.\*

HENRIETTA.

Pray, Aunt, tell us what you have read.

MRS. F.

These people collect, from the shores of the

\* Humboldt, *Tableaux de la Nature*.

rivers Meta and Orinoco, upon which they live, a fat, unctuous clay of a greyish, yellow hue (a true potter's clay, coloured by a little oxide of iron). This they select with great care, being able readily to distinguish, by the taste, one clay from another. They then form it into little balls of from five to six inches in diameter, and bake them slightly, until the upper surface becomes reddish. It is again moistened when they wish to eat it. The Ottomacos devour immense quantities of earth; Humboldt found it in their huts piled up in pyramids; and he says, that each individual will consume daily, three-quarters of a pound, or even more.

ESTHER.

But is it their sole food?

MRS. F.

During the rainy season, they also eat small fish, lizards, or the root of a fern, but these clay bullets form their chief aliment. At other times of the year, they subsist on tortoises and fish, which they shoot with their arrows with admirable address: but so fond are they of this clay, that even then, they eat a little of it, as a treat after their repasts.

ESTHER.

But surely, their health must suffer from such unnatural food?

MRS. F.

No: the Missionaries who live among them, assert that it causes no illness whatever, and that they observe no difference in their health during the time that they live upon it. But this extraordinary propensity to eat earth, is by no means uncommon in all the countries of the torrid zone; and children are often tied up in the house to prevent them from going out, after the rainy season, to eat earth. De Humboldt, in a village, on the river Magdalena, saw women, who were making earthen pots, put large lumps of the clay into their mouths.

ESTHER.

And I have heard that the negroes of New Guinea eat a yellowish earth, and that the slaves, when brought to America, try to procure a similar enjoyment, and that it is sold secretly in the markets; but though their health always suffers in consequence, no punishment can induce them to relinquish the gratification.

MRS. F.

But it were almost tedious to enumerate the

various people who eat earth. The inhabitants of New Caledonia devour pieces as large as the hand, of a species of Oolite. In several parts of Peru, the natives buy in the markets a calcareous earth, which they reduce to a fine powder, and mix with their Coca.

HENRIETTA.

What is *Coca*?

MRS. F.

The leaves of *Erythroxylon Peruvianum*; and it is known that the Indian messengers do not take, for many days, any nourishment but this.

ESTHER.

But chalk has not been yet found in either North or South America.\*

MRS. F.

No, it is all imported; but it was a calcareous earth, not chalk, upon which I stated, that these people subsist. In Java, little rolls of a reddish clay are sold in the market-place, under the name of *Ampo*. Many eat it to become thin, which is reckoned a great beauty among the Javanese; and, even in Germany, the workmen in the free-

\* Conybeare and Phillips.

stone quarries of Kiffhäuser spread upon their bread, instead of butter, a very fine clay, which they term *steinbutter* (stone butter). Thus we see this vitiated taste widely diffused ; but more particularly among those indolent races of the torrid zone, upon whom Providence has lavished her greatest treasures.

ESTHER.

Animals, when reduced by famine, will eat earth.

MRS. F.

Yes, wolves have been known to devour clay ; but, did you ever hear the expedient that the Hottentots have recourse to, in order to allay the feeling of hunger ? They tighten the girdle which they wear round the waist, and this they term “tightening the girdle of famine.” \*

ESTHER.

But that is not a singular instance of this means being employed. The ermine hunters of Siberia are said to undergo most dreadful sufferings from hunger. It appears, that in order to defend their provisions from wild beasts, and not being able to carry them along

\* Thomson’s Travels in the Cape of Good Hope.

with them, they dig holes in the ground, and bury them, at such stated distances, as they think they will require them. But sometimes these depôts are discovered and plundered by the bears; at others, they do not reach their fresh supplies at the expected times. To obviate the inconvenience which these accidents may occasion, each hunter is furnished with two flat boards which they attach round their waists, and which they tighten considerably, in order to alleviate the gnawing sensations which they experience.

HENRIETTA.

Poor creatures !

MRS. F.

Many of the wandering tribes subsist, during their passage across the African desert, upon the gum of an acacia (*A. vera*. Willdenow).

ESTHER.

That, I believe, is the same plant as that which produces gum arabic; the finest of which is brought in caravans to Cairo, by the Arabs who live round Mount Tor and Mount Sinai.

MRS. F.

The diet of the Tartars, when on a hasty

march, is scanty enough ; for on sudden emergencies they provide themselves with a sufficient number of little balls of cheese, or rather of hard curd, which they occasionally dissolve in water ; and this unsubstantial meal will support for many days the life, and even the spirits of the patient warrior.\*

## FREDERICK.

Herodotus mentions a tribe of Babylonians who dried their fish in the sun, then beat it very small in a mortar, sifted it through a fine cloth, and formed it into cakes, and baked it like bread.†

## MRS. F.

That is very much the manner which some of the Indians of the Orinoco still pursue. They fry their fish, dry it in the sun, and reduce it, bones and all, to a powder. When they wish to eat it, they mix water with it, to make it into a paste, which they call "*manioe de pescado*," or fish bread.‡ But did you ever hear of ants being eaten ?

## ESTHER.

Yes ; the Hottentots eat them both boiled and uncooked ; the Africans parch them in an iron pot, stirring them about, as is done in

\* Gibbon.

† Clio.

‡ Humboldt .

roasting coffee. In this state, they eat them as we do comfits; and a traveller \* who tasted them, says that they are very nourishing and wholesome; in taste, much resembling sugared cream, or sweet almond paste. In some parts of Sweden, ants are distilled with rye, to flavour the inferior kinds of brandy †; and Sir Stamford Raffles states that white ants are a common article of food in Java ‡, and that they are sold generally in the public market. Their extensive nests are opened to take out the chrysalis; or they are watched, and swarms of the perfect insect are conducted into basins or trays, containing a little water, in which they soon perish.

HENRIETTA.

I cannot fancy people eating such things.

MRS. F.

Nor would you probably like bees, which are eaten in Ceylon, or spiders (*Aranea edulis*) nearly an inch long, which a traveller § relates that the inhabitants of New Caledonia eat with avidity, and roast over the fire. Lalande is said to have been equally fond of these strange

\* Smeathman.

† Kirby and Spence's Entomology.

‡ History of Java, vol. i.

§ Labillardière.



dainties, and mention is made of a German who would spread them upon his bread like butter.

FREDERICK.

And then there are the Locusts, which were eaten by the Parthians.

ESTHER.

And also at Mecca, where in times of scarcity they are pounded and mixed with flour for bread, or fricasseed in butter. The Hottentots make them into a soup, and find them fattening; so do they also in the Mahratta country. The Moors sometimes eat two or three hundred locusts at a time; and in the markets even of Greece, they appear to have been exposed for sale.

FREDERICK.

But the Greeks used to eat crickets.

ESTHER.

They could not have been very good; Humboldt states that he saw the Indian children drag centipedes, eighteen inches long, out of the earth, and devour them.

MRS. F.

Some nations also eat serpents. Stedman says that the negroes wanted to eat one that he

shot, and the negroes of Congo and Angola feast upon the boas, and prefer them to poultry. Shaw also states, that a population of 40,000 people at Cairo, live upon lizards and serpents, as a species of self-mortification. But did you ever hear of a people who ate moths?

HENRIETTA.

No, Aunt: we shall be much obliged to you to give us an account of them.

MRS. F.

This moth (*Euplœa hamata*) is found in New South Wales, chiefly on the Bugong mountains, where it assembles in multitudes, whether for the purpose of migration, is not yet ascertained, but immense swarms of butterflies, covering a space to the extent of three or four acres, were seen by Captain Cook; and Captain King also relates that they congregated in great numbers. The bodies of the moths are large, and filled with a yellowish oil, in taste much resembling a sweet nut. November, December, and January, are the months for collecting them; and this period is a season of such great feasting to the aborigines, that they assemble, from all parts of the country, to collect the moths on these mountains, where they are found upon the masses of granite, as

many as five or six bushels being gathered upon a rock. The natives make smothered fires underneath the rocks where they are collected, and thus suffocate them with smoke, at the same time, sweeping them off frequently in baskets full at a time. After they have collected a sufficient quantity, they are thus prepared:—a circular space is cleared upon the ground, and on it, a fire is lighted, which is kept burning until the ground is sufficiently heated, when the fire and ashes are removed, and the moths placed upon the heated ground, and stirred about until the down and wings are removed from them; they are then placed upon pieces of bark and winnowed, in order to separate the wings and dust, which are mixed with the bodies. They are afterwards either eaten, or placed into a wooden vessel, and pounded into masses or cakes, resembling lumps of fat, or rather dough, which has been discoloured. These masses will hardly keep a week, unless smoked, when they can be preserved to a much longer period. With these, the native tribes load themselves during the season of feasting, and thrive and fatten upon this strange nourishment. The Bugong moth is also a great favourite with the crows, who often dispute their possession with the natives.\*

\* Bennett's Wanderings in New South Wales.

ESTHER.

Thank you, Mamma. I never before heard of a moth being eaten in its perfect state, though the caterpillar of the Goat moth is supposed to have been eaten by the Romans, and the Chinese eat the chrysalis of the silk-worm, after having wound off the silk.

MRS. F.

Fried grasshoppers and silk-worms are preferred by the inhabitants of Madagascar to any other food; and then there is the Grugru worm of the Cabbage palm, and the worms furnished to the Javanese by the teak and other trees; but I really believe, that the Chinese eat more strange animals, than any other civilised nation in the world. Dogs \* and cats are made into soups; and rats are also eaten by them †, if we may credit a recent account, served up with worm sauce.

ESTHER.

The South Americans used to eat the mule dogs of their country, at the time of the arrival of the Spaniards, and so I believe do the Tartars ‡; but, speaking of the Chinese, I find that they eat the fins and tail of the shark, which are very glutinous, and are, indeed, much liked

\* Dogs are also much eaten on the Gold Coast.

† Bennett's Wanderings in New South Wales.

‡ Humboldt.

by our seamen. When dried, they form an article of commerce to China, where they are used in soups. The shark is also eagerly eaten by the natives of the Polynesian islands, who often feast upon it in a raw state.

MRS. F.

Then there are the birds' nests, which we have before alluded to, and also the *biche* or *bearche de mer*.

HENRIETTA.

What is that?

MRS. F.

It is now ascertained to be a species of Sea Slug (*Holothuræ*); which is dried and used in the dishes of the Chinese, being collected on the shores of nearly all the islands of the Indian Archipelago and New Holland. It sells in China at a high price; but as it requires great care, and the smell of it, moreover, is very disagreeable, it seldom forms part of the cargo of a European vessel.\*

HENRIETTA.

Well, that is not worse than the snails which some people eat.

\* Raffles's Java, and Beechey's Voyage.

MRS. F.

This tribe of animals is a general article of food. The Romans had their *Cochlearia*, in which they were fed upon bran and wine until they attained an incredible size.\* The Ashantees eat snails after they have been smoke-dried.† In several provinces of France, at Liege, in Silesia, Brabant, Switzerland, and Italy, they are also eaten as food; and in the markets of most of the great cities of the Continent they are sold to make a mucilaginous broth for those who are attacked with affections of the lungs. The places in which they are fattened are termed *escargatoires*, *escargot* being the French appellation of the edible snail (*Helix pomatia*). One of these fattening places has been described to me, which exists in a convent on the lake of Starenberg, in Bavaria. It resembles, in construction, one of our garden brick pits; and on removing the cover, hundreds of these creatures were to be seen, which were regularly fed with cabbages and other vegetables until sufficiently fattened to be brought to market.

ESTHER.

Is the eatable snail a native of Great Britain?

\* Varro says, until a shell would hold two quarts!

† Bowdich.

MRS. F.

No; but it has been naturalized in parts of Surrey, and, I believe, Northamptonshire. On the downs near Croydon, it is of common occurrence. Tradition assigns the importation of these snails to Sir Kenelm Digby, who is said to have introduced them, to cure his wife of a consumption. I believe that attempts have been made to naturalize them in other parts of the country, but without success. This species is much larger than the garden snail, and the shell is of a pretty light brown.

ESTHER.

I have somewhere read, that snails are supposed to have been eaten by the Israelites, in their rapid flight out of Egypt to the Red Sea.

MRS. F.

That is a supposition which must rest upon mere conjecture, as there is no mention of snails in the Pentateuch, to warrant the assertion. It is true, that the country about the Red Sea is covered with a close herbage completely animated with snails, which are much esteemed by the natives; and so abundantly is this genus diffused, that, even in the most desert wastes, in parts of Sahara, which is destitute of all kinds

of vegetation, except here and there a tuft of grass or a solitary stunted tree, which seems to realise the description of the Psalmist, "that withereth before it groweth up;" yet, even these parched specimens of vegetation, have their inhabitants, and are sometimes quite studded with the snails which exist on this scanty nourishment.

ESTHER.

The natural history of the snail is most interesting. It lays its eggs in shady places, in hollows which it excavates and covers with its foot; the young at first lives entirely upon the pellicle or thin skin of the egg, and remains concealed in its retreat a month before its shell is sufficiently hardened to encounter its enemies. When the first chills of autumn approach, the snail prepares its winter habitation.

FREDERICK.

How is that made?

ESTHER.

In this manner. A quantity of viscid mucus or slime is secreted in the under surface of the foot, to which a large portion of the dead leaves adheres. This is turned on one side, and a fresh secretion being thrown out, the layer of



earth mixed with mucus, is left. The animal then takes another layer of earth on the bottom of the foot, turns it also to the part where it intends to form the wall of its habitation, and leaves it in the same manner, repeating the process until the cavity is sufficiently large, and thus making the surface even and compact. In forming the dome or arch of the form, a similar method is used, the foot collecting on its under surface a quantity of earth, and the animal, turning it upwards, leaves it by throwing out fresh slime; and this is repeated until the perfect roof is formed.\* Having now completed its winter house, the snail draws in its foot, covering it with the mouth, and opens its spiracle to draw in the air; on closing this, it forms with its slime a fine membrane, interposed between the mouth and extraneous substances. Soon afterwards, the mouth secretes a large portion of a very white fluid over its whole surface, which instantly sets uniformly, and forms a kind of solid operculum, like plaster of Paris, about half a line in thickness, which accurately closes the mouth. When this is become hard, the animal separates the mantle from it. After a time, expelling a portion of the air it had inspired, and thus being reduced in bulk, it re-

\* Journal of the Royal Institution.

treats a little further into the shell, and forms another leaf of mucus, and continues repeating this operation, till there are sometimes five or six of these cells filled with air between it and the operculum. The membraneous partitions are more numerous at the end than at the beginning of winter, and in snails inhabiting the mountains, than in those in the plains. Respiration ceases, during the period of hybernation.

HENRIETTA.

But how does the snail get out when the spring arrives?

ESTHER.

Their mode of escape is also singular : the air which they had expired on retiring into their shell further and further, remains between the different partitions of mucous membrane above mentioned, which form so many cells hermetically sealed ; this they again inspire, and thus, acquiring fresh vigour, each separate partition, as they proceed, is broken by the pressure of the foot, projected in part through the mantle : when arrived at the operculum they burst it by a strong effort, and finally detaching it, then emerge from their long imprisonment.\*

\* Kirby's Bridgewater Treatise.

HENRIETTA.

Thank you, Esther, for this interesting account: I hope that some day we shall find a snail in its nest; but this dry weather I never see them.

MRS. F.

No; they remain quiet, because their locomotive powers are much impeded, in dry weather by the dust, &c. adhering to their slimy foot: after rain, they move about with comparative celerity. It is on this principle, that gardeners lay sawdust around the plants which they wish to defend from their attacks, as the sawdust clings so to the foot of the snail as to prevent the animal from passing over it.

HENRIETTA.

What a beautiful thin shell some of the snails have!

MRS. F.

Yes; the history of this genus is very interesting and instructive, affording a striking manifestation of the superintending providence of the Almighty. He cares for the peculiar wants of his creatures; and, though all things are at his command, He is not prodigal of means. He gives what is required, and withholds what is needless. Upon the animals who inhabit the

rocky shore, He has bestowed a thick substantial covering; but to snails, the greater number of which live on the land, or in stagnant pools or peaceful streams, He has given a remarkably light shell, which, while it affords ample protection to its inmate, offers no impediment to its locomotive propensities. Can we see the beautiful adaptation to circumstances, the provision for the wants, and consideration for the comfort of His creatures, and not give the praise and adoration to Him, who, riding upon the wings of the winds, regards not only the sons of men, but the meanest reptile that crawls upon the earth?\*

\* Mayo, Lessons on Shells.

## CHAPTER XIII.

## THE UPAS TREE.

FABULOUS ACCOUNT OF THE UPAS. — REAL HISTORY OF THE  
 TWO POISONS KNOWN UNDER THAT NAME. — BARK BREWERS.  
 — SHAKES OF PALMS. — ARISTOLOCHIA. — WOUNALI AND  
 CURARE POISONS OF SOUTH AMERICA. — WOLF POISON OF  
 THE CAPE. — FISH POISON OF IRELAND. — PARYSATIS AND  
 SEXTILIA. — MITHRIDATES. — CORNELIA. — MARQUISE DE  
 MINVILLIERS. — IRON MASK. — MAGNETIC MASK. — PRE-  
 LISS.

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“ The air no more was vital now,  
 But did a mortal poison grow.”      SPRAT.

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## HENRIETTA.

AUNT, would you give us a true account of the Upas tree, for Esther tells us, that a great part of the stories related about it are false.

## MRS. F.

With pleasure. The reports of the Dutchman Foersch, who first brought the story to Europe, have been almost all proved to be incorrect by subsequent travellers; but, suppose, Henrietta, you first give us the original history.

of the Upas, although it is doubtless familiar to you all, and then we shall the better see, how far it is borne out by facts.

HENRIETTA.

It was said that it grew near the Emperor's seat, some miles from Batavia; that all the country, for twelve miles round the tree, was perfectly barren, in consequence of the noxious effluvia which it emitted. The poison was said to be procured by the malefactors who had been condemned to death, but who were allowed this chance for their lives; and so fatal, indeed, was the effluvia, that scarcely one-tenth returned, of 700 criminals who were sent.

MRS. F.

Yes; Foersch adds, that he had seen several of the criminals who had escaped, and that they told him that the ground was covered with sand and dead bodies, and that no animal whatever was to be seen there. The same author relates that in 1755, 400 families (comprising about 1600 persons), having refused to pay tribute to the Emperor, were banished, but afterwards obtained permission to settle in the country round the Upas. In less than two months their number was reduced to 300, who afterwards obtained the Emperor's pardon. Such

is the long-received fable of the Upas: let us now proceed to a true account of it.

HENRIETTA.

Thank you, Aunt.

MRS. F.

In the first place, I must tell you, that there are two plants in the island of Java which produce the Upas poison, with which the natives poison their bamboo arrows, &c.: the one is a considerable tree, the other but a small shrub. Both grow in the eastern part of the island; the tree is called *Upas antiar*; the shrub, *Upas tiente*: the latter affords the more virulent poison of the two; but we will first describe the tree.

ESTHER.

That is, the *Upas antiar*.

MRS. F.

Yes. The *Upas antiar* (*Antiaris toxicaria*), commonly called *Ipo*, is a large tree, about 100 feet high and 18 feet in circumference at the base. It rises with a naked trunk to about 60 or 80 feet, before it throws out its branches. It belongs to the 21st class of Linnæus, and to the natural family of Urticæ. Its flowers grow in catkins, appearing about the month of June. Its leaves are of a pale green, are co-

vered with rough short hairs, often curled, and dropping off before the time of flowering, and not re-appearing until the fall of the flowers. The wood is white, the bark smooth and whitish; in old trees, the cortex (or outer bark) is more than an inch thick.

HENRIETTA.

I suppose that the tree grows in desert plains?

MRS. F.

On the contrary, it is only met with in the thickest forests. Dr. Horsfield states, that the largest which he saw, was so completely environed by the trees and shrubs of the forest, that it was with difficulty he could approach it. Vines and other shrubs were adhering to the trunk, and ascending to nearly half its height, while birds and lizards perched upon its branches, and ran up and down the tree with impunity. The juice, which, in the young branches, is white, and in the trunk yellowish, is very viscous, and is bitter to the taste; in consistence it much resembles milk, and flows abundantly if an incision be made in the cortex—so that, in a short time, a cupful may be collected.

HENRIETTA.

Is there any danger in procuring it?



MRS. F.

Yes, to persons of delicate health, whose constitution renders them susceptible of absorbing the effluvia, its exhalations are undoubtedly hurtful, while others feel little or no ill effects from it. The tree may be approached or ascended with safety, unless it be either largely wounded or cut down, when, a considerable portion of the juice being disengaged, it causes cutaneous eruptions and inflammation, as the natives are well aware, they being very unwilling to assist in collecting it. A Javanese whom M. Leschenault sent up for the purpose of gathering some of the flowering branches, was obliged to cut notches in the trunk, in order to climb up the tree: he had scarcely ascended five and twenty feet before he was obliged to descend; he became very much swollen, and was affected with vertigo, &c.; while another Javanese went up the tree, as far as necessary, without feeling any inconvenience. Leschenault himself walked in the midst of the broken branches of a tree, which he had had cut down, and even rubbed his face and hands with the juice (washing it off, however, immediately), and he did not feel in the least incommoded by his experiment; so different are its effects upon different individuals.

ESTHER.

Is there not some peculiarity in the bark of the antiar ?

MRS. F.

Yes, the liber, or inner bark, is of a fibrous texture, like that of the paper mulberry (*Broussonetia papyrifera*), and, when cleansed from its adhering particles, resembles coarse linen. It has been worked into ropes, which are very strong, and the poorer class of people employ the liber of the younger trees (it being more easily prepared) for the purpose of making a coarse stuff, which they wear when working in the fields ; but it requires much bruising, washing, and soaking before it can be used ; and even when it appears to be completely purified, persons wearing this dress, on being exposed to rain, are affected with an intolerable itching, which renders their covering insupportable, a small portion of the gum still adhering to the liber producing, when exposed to the wet, this irritating effect.

ESTHER.

These bark dresses remind me of the beautiful lozenge-shaped meshes of the liber of the Lace bark tree (*Daphne lagetto*), which has been actually worn as lace. Charles the Second had

a cravat made of it, which was presented to him by Sir Thomas Lynch, when governor of Jamaica, of which island (where it is used for ropes) it is a native, as it is also of Hispaniola, where it is known by the name of *bois dentelle*.

MRS. F.

An excellent writing paper is made of another species of *Daphne* (*D. cannabina*), which is a native of Cochin China.

ESTHER.

And then there are the bark dresses of South America, the "*chemises de Marima*," as De Humboldt terms them.

HENRIETTA.

What tree produces them?

ESTHER.

That De Humboldt says he is unable to determine, but he saw trunks of the "*arbre à chemises*\*" more than fifty feet long. The Indians cut them into cylindrical pieces of two feet in diameter. They remove the red fibrous bark,

\* Humboldt, Voyage, t. viii.

taking great care not to make any longitudinal incisions. The bark furnishes them with a kind of garment, resembling sacks of a coarse stuff. The larger opening serves for the head, and they make two at the sides for arm-holes. In the rainy seasons the natives wear these garments, which have the form of the *poncho*, or South American dress. As in these climates the richness and beneficence of nature are regarded as the first causes of the indolence of the inhabitants, the missionaries do not fail to say, "that in the forests of the Orinoco, garments are found ready made upon the trees." One might add to this story the pointed caps, formed by the spathes of certain palm trees, and which resemble a net-work of coarse stitches.

## HENRIETTA.

Like the caps which are made of the Talipot tree.

## ESTHER.

Or the flowers of the *Aristolochia*\*, which De Humboldt found upon the borders of the Magdalena, four feet in circumference, and which the Indian children amuse themselves with putting upon their heads as caps.

\* Tableaux de la Nature.

MRS. F.

Or of those of the tree in question, the Upas antiar; for Sir Stamford Raffles mentions that one of the regents had caps or bonnets prepared from the liber, in order to decorate his attendants; they were stiffened with rice water, and handsomely painted; but all refused to wear them, asserting that they would cause the hair to fall off. But to proceed to the poison of the antiar. It is curious, that although this irritating property of the bark is known to the Javanese in all the places where the tree grows, yet the preparation of a poison from the juice, is only known among the inhabitants of the eastern extremity of the island.

ESTHER.

Is this preparation very simple?

MRS. F.

On the contrary, an eye-witness describes it as very elaborate. He saw about eight ounces of the juice, which had been preserved in the joint of a bamboo, strained into a bowl; to this was added about half a drachm each, of a number of vegetable substances\*, all finely grated and

\* Viz. Arum, Kæmferia galanga, Amomum, onion, garlic, black pepper, &c.

bruised. The mixture was then stirred, and a seed of capsicum (*C. fruticosum*) placed in the middle of the fluid. The seed immediately began to whirl round rapidly for about a minute, when it remained completely at rest. More pepper was then added, and another capsicum seed placed as before; a similar commotion took place in the fluid, but in a diminished degree; more pepper was added and another seed, till, on the fourth trial, the seed remained quiet, which was considered as a sign that the preparation was complete. The poison is preserved in close vessels, as it will not otherwise keep.

ESTHER.

And is it very virulent upon all animals?

MRS. F.

Fowls have a peculiar capacity to resist its effects, as appears from some experiments which were tried, in which a fowl lived four and twenty hours after it had been applied, and some recovered entirely, although a cat had been killed by it in fifteen minutes, and a buffalo in rather more than two hours. Having now fully described the antiar, let us proceed to the other kind of Upas.

HENRIETTA.

The *tiente*—

MRS. F.

Or *Strychnos tienté*\*, is a kind of vine, or *liane* (as the French term it). Its flowers and fruit are unknown; the stem ascends the highest trees, and grows only in close, shady, and almost inaccessible forests, in a black, fertile, vegetable mould. It is of rare occurrence, and is neither injurious to animal nor vegetable. No juice exudes from its stem, which is reddish, and the young branches are occasionally furnished with tendrils. It is from the bark of the root that the gum is obtained, by boiling, and it is prepared with nearly the same ingredients as the antiar. The root descends two feet under ground, and then extends horizontally for several feet. It is about the thickness of the arm, woody, and covered with a thin bark of a bitter taste: this bark furnishes the poison, which is only to be obtained by boiling—for, when the fresh root is cut, a quantity of water runs from it, without taste, and perfectly harmless. The natives make more mystery about its preparation than about that of the antiar; and its effects, as I have before mentioned, are more violent. As soon as it touches the blood, it is felt immediately, causing excessive burning, fainting, and death.

\* Also called Chetik.

## HENRIETTA.

Then all the rest which is said about the Upas is false?

## MRS. F.

Entirely. You see, from what I have told you, that Foersch's account, as far as relates to the situation of the tree, to its effects upon the surrounding country, and to the application said to be made of the Upas upon criminals, as well as the description of the poisonous substance itself, and its mode of being collected, all prove to be an extravagant forgery; at the same time that its effects must be admitted to be of equal violence with almost that of any vegetable poison known. A poisoned arrow of bamboo, to the end of which is attached a shark's tooth, is thrown by the people of Macassar, Borneo, and the Eastern Islands.\* Darts of arrows of antiar poison were employed by the natives of Macassar, in their attack on Amboyna, in about 1650; also, by the people of Celebes, in former wars with the Dutch; but after its having proved mortal to many of their soldiers, the Dutch discovered an

\* Rumphius describes the Upas, under the name of *artaricaria*, and thus establishes the identity of the poison tree of Macassar and the other Eastern Islands with the antiar of Java.



infallible remedy in the roots of *Radix toxicaria* (Ramphius). The Upas is also used to mix with rice, as a bait to animals.

HENRIETTA.

But, surely, they cannot eat them afterwards?

MRS. F.

Yes, they can; for the flesh is not poisonous, excepting just the part which comes in contact with the poison.\* It is not known to which natural order of plants the Upas tiene belongs, but it is supposed to be one of the Apocinæ, which contains many poisonous plants, such as the bean of St. Ignatius (*Ignatia amara*), nux vomica (*Strychnus nux vomica*), snake wood, &c.

ESTHER.

And is not the *wourali* poison of South America produced by a plant of the same family?

MRS. F.

Probably; but nothing decided is known on this point, Mr. Waterton, whose "Wanderings in South America" you may be amused in reading, having been unable to procure speci-

\* The above account of the two kinds of Upas is taken from Raffles's Java, vol. i.; Dict. des Sciences Naturelles; Leschenault, &c.

mens of the plant. Nor could De Humboldt find that which produces the *curarè* poison, in flower, so as to enable him to determine its genus; but, from its appearance, he judged it to be a *Strychnus*.

HENRIETTA.

I never heard of this poison.

MRS. F.

It is known to the Otomacosof South America, who poison their thumb nail with it; and so rapid are its effects, that the mere impression of the nail is mortal, when the *curarè* mixes with the blood. It is sold in calabashes, and is of about the consistency of pitch; the best comes from the Esmeralda, and is sold for about two shillings an ounce.\*

ESTHER.

Is it the same as the wourali?

MRS. F.

No; there are many poisons used by the different South American tribes, such as the wourara or wourali of Dutch Guyana, the *curarè* of the Oronoco, and the *ticuna* of the Amazons, all varying in their kinds. Muriate

• Humboldt.

of soda (common salt) is the principal antidote employed, but no proofs exist of its efficacy.

#### ESTHER.

Dr. Wallich mentions a frightful poison extracted from a species of aconite (*Aconitum ferox*) called among the natives Visha Bish, which he states to be as universally used, and to be as deleterious, as the Upas.

#### HENRIETTA.

Then which are supposed to be the most violent vegetable poisons known?

#### MRS. F.

Upas tienté, the poison of the ticuna, and the wourali†; but many, and indeed most of these, naturalists have, as yet, had little opportunity of examining. That in use at the Cape, for instance, where the Hottentots poison their arrows with a species of Euphorbia, and also with a large bulbous lily (*Amaryllis disticha*), which grows plentifully about the Cape. The natives take the bulbs, when the leaves begin to shoot, cut them across, and leave them in the sun until they acquire the consistency of gum, and are fit for use.

\* *Plantæ Asiaticæ rariores.*

† Humboldt, *Voyage*, t. viii.

ESTHER.

For what purpose are these poisons employed?

MRS. F.

For killing antelopes and other small animals. The natives also throw large pieces into the pools of water resorted to by the wild beasts: the animals drink, and die immediately. At the Cape, there is also another poison which is much used by the European inhabitants; it is called the wolf poison, and is probably a species of *Rhus*. The nuts are roasted like coffee, pounded, and stuffed into small pieces of meat; these are thrown into the fields, where they are soon found by the voracious hyænas, which are generally killed by this expedient.\*

ESTHER.

Your speaking of poisonous *Euphorbiæ* reminds me of the use made in Ireland of a British species (*Euphorbia hiberna*). It is used extensively by the peasantry in the county of Kerry for poisoning or rather stupefying fish, in the same manner as the exotic species (*Euphorbia piscatoria*) is employed for the same purpose by the negroes, who pound the leaves between two stones, and mix them with cassada paste.

\* Pattison's Journey to the Cape.

So powerful are the ~~quantities~~ of the Irish Euphorbia, that a small creel or basket filled with the bruised plant is sufficient to poison the fish for several miles down a river.

ESTHER.

I have heard that the art of slow poisoning is carried to a great height by the African negroes in the West Indies.

MRS. F.

It is, I believe, to an extent of which we can form little conception, and which offers but few parallels in civilised life.

FREDERICK.

That was an ingenious contrivance of Parysatis, the wicked queen of Darius Nothus, to get rid of her rival and daughter-in-law Statira.\* She poisoned one side of the knife with which she helped Statira to some bird, which she cut in two parts, gave one half to Statira, who soon died in convulsions, while the wicked Parysatis ate the other half herself without injury.†

\* Wife of Artaxerxes Mnemon, who was King of Persia  
B.C. 404.

† Rollin, book iv. c. 2.

MRS. F.

The ancients must have been well acquainted with the art of compounding subtile poisons, for we find, for instance, that Mithridates, and other celebrated persons, used to carry poisons in their rings; and there is also the story of Cornelia, which, though doubtless much exaggerated, must probably have been founded on fact.

FREDERICK.

Which Cornelia, Aunt?

MRS. F.

Of course, I do not mean the mother of the Gracchi, but a Roman lady of that illustrious family, and of the same name, who, with many others, was accused (during the time of an epidemic at Rome) of preparing poisons from which numbers died. When brought before the assembly of the people, the culprits attested that they had only administered salutary remedies; but the slave who had informed against them, demanded that they should swallow their own potions. His advice was adopted: they drank the poison, and all expired, having thus, probably, escaped a more severe and ignominious punishment at the hands of an enraged populace.\*

\* B. C. 331, Biographie Universelle.

ESTHER.

Then there was also another instance at Rome, in the wicked Tofania.

MRS. F.

But none have surpassed in wickedness the infamous Marquise de Brinvilliers and her associates.

ESTHER.

That is the person whom Madame de Sevigné mentions in her letters.

MRS. F.

It is.

HENRIETTA.

Will you have the kindness to tell us about her?

MRS. F.

This wretched woman was rich and beautiful, and the wife of the Marquis de Brinvilliers, but was anxious to marry Sainte Croix, a captain in the army, and sought only to get rid of her husband, in order to accomplish her wicked purpose. Her father caused Sainte Croix to be shut up in the Bastille, where he became acquainted with an Italian of the name of Exili, who made a trade of poisons, and who was one of those who were concerned in the death of

more than a hundred and fifty people at Rome, during the pontificate of Innocent the Tenth. From him he learned the secret of his horrid art, and communicated them to the Marquise de Brinvilliers, who was as anxious as Sainte Croix to revenge herself upon her family. Deaf to every human feeling, this wretched woman first tried the poisons by mixing them with biscuits, which she distributed to the poor: she then poisoned her father and her two brothers, and endeavoured to destroy her husband; but Sainte Croix, disgusted at crimes so revolting, did not wish to marry a woman as wicked as himself, and as often as she gave a poison to her husband, Sainte Croix administered an antidote, so that he survived all the atrocious attempts of the Marquise. At last her practices were discovered. Her accomplice, Sainte Croix, died suddenly, from the following accident. The poisons which he prepared were of so subtle a nature, that the mere inhaling of them was fatal; Sainte Croix, therefore, always worked with a glass mask, in order to intercept the noxious exhalations; but one day the mask accidentally fell from his face, and he was immediately suffocated.

#### HENRIETTA.

Sainte Croix's mask reminds me of the Iron Mask.



MRS. F.

We will talk about that when I have finished my account of Brinvilliers. On examining the effects of Sainte Croix, a box was found addressed to Madame de Brinvilliers, but which was opened, and found to contain a collection of poisons. The whole tissue of their crimes was discovered; the Marquise was tried and condemned to be beheaded, her body burned, and her ashes scattered in the wind. This sentence was executed in 1676; but these poisonings continuing in Paris, even after her death, the *Chambre ardente* was established in 1699, to inquire into the matter. Many were accused, but the most notorious of the culprits was a woman of the name of Voisin. She was punished with death; but the public mind continued for a long time to be disturbed with ideas of poison, and many natural deaths were doubtless attributed to violence and poison.\* Now I have finished this frightful history of crime, let us hear, Henrietta, what you have to tell us about the Iron Mask.

HENRIETTA.

I do not think, Aunt, that I know much

\* See Mme. de Sevigné, *Causes célèbres*, and *Biographie Universelle*. The account of the first must be received with caution, and due allowance made for the excitement of the time.

about it, except that a person so called was confined in the Bastile by Louis XIV., and that he always wore an iron mask, and no one ever could find out who he was.

MRS. F.

That is pretty nearly all that is known about this singular individual, who has given rise to various conjectures respecting him, some imagining him to be of royal birth, others merely supposing him to have been a state prisoner. Who he was will probably ever remain a mystery, but he will always excite the greatest interest, and a curiosity perhaps the more lively, from the little probability there exists of its ever being satisfied. We will read more about him this evening; but in the mean time, I must set you right upon the common error respecting the mask which he wore. It was made not of iron, but of velvet, and the chin part was furnished with steel springs, to enable him to eat without raising it; but people supposing the mask to be made entirely of iron, gave its unfortunate wearer the appellation of the Iron Mask, by which he is commonly designated.\*

\* *Biographie Universelle, Siècle de Louis XIV.*, &c. Mr. Ellis has also written the "History of the Iron Mask."

## ESTHER.

Now that we are on the subject of masks, let me read you an account of the magnetic mask which I met with yesterday.\*

“ In needle manufactories, the workmen who point the needles are constantly exposed to excessively minute particles of steel which fly from the grindstones, and mix, though imperceptible to the eye, as the finest dust in the air, and are inhaled with their breath. The effect, though imperceptible on a short exposure, yet, being constantly repeated from day to day, produces a constitutional irritation dependent on the tonic properties of steel, which is sure to terminate in pulmonary consumption; insomuch, that persons employed in this kind of work used scarcely ever to attain the age of forty years. In vain was it attempted to purify the air before its entry into the lungs by gauzes or linen guards; the dust was too fine and penetrating to be obstructed by such coarse expedients, till some ingenious person bethought him of that wonderful power which every child who searches for its mother's needle with a magnet, or admires the motions and arrangements of a few steel filings on a sheet of paper held above it, sees in exercise. Masks of magnetised steel wire are

\* Herschel's Discourse.

now constructed and adapted to the faces of the workmen. By these the air is not merely *strained* but *searched* in its passage through them, and each obnoxious atom arrested and removed."

MRS. F.

A happy instance of how a knowledge of the laws of nature enables us to improve our condition, and to remedy evils the most serious and distressing. But we must now take a walk, for it is getting late; and indeed it looks so much like rain, that I shall put on my pelisse. By the by, who can tell why a pelisse is so called?

ESTHER.

I do not know, Mamma.

MRS. F.

From *pelles*, skin; hence *pellice*, *pelisse*; they having originally been always made of, or lined with, fur.

## CHAPTER XIV.

## NATIONAL EMBLEMS.

ADGES OF THE SCOTCH CLANS. — SHAMROCK. — IRISH HARP. — ROYAL SUPPORTERS. — HERALDIC VISITATIONS. — DISTINCTION BETWEEN NOBILITY AND GENTILITY. — COMMONER. — HORSE, SAXON. KENTISH, HANOVERIAN, CARTHAGINIAN, AND AGRIGENTINE. — HORSE AMONG THE ANCIENT GERMANS. — RAVEN. — SAGITTARIUS. — PLANTAGENETS. — FLEUR DE LYS. — LILY AND THE ROSE. — PAPAL PRESENT. — "UNDER THE ROSE." — ROSE OF ENGLAND. — HAWTHORN. — SALAMANDER, NATURAL HISTORY OF.

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"Hail to the chief who in triumph advances!  
Honoured and blessed be the ever-green Pine!  
Long may the Tree in his banner that glances,  
Flourish, the shelter and grace of our line!"  
SCOTT.

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## HENRIETTA.

AUNT, will you have the kindness to tell me what *gale* is, which Mr. Campbell said yesterday was the badge of his clan?

## MRS. F.

The sweet *gale*, or bog myrtle (*Myrica gale*), is a shrub which grows abundantly in bogs and marshes, and the leaves and berries, which are covered with resinous dots, exhale a delightful fragrance when rubbed between the fingers. The *gale* is abundant in Scotland, where it is

the favourite retreat of the black game. Linnaeus says that the berries boiled in water, yield wax like those of the candleberry myrtle (*Myrica cerifera*). But if you would like to know some of the emblems of the different Scotch clans, here is a list I once made of all which I was able to collect:

- Buchanan—birch (*beatha*, Gaelic).  
Campbell—gale, or bog myrtle (*Myrica gale*).  
Cameron—oak (*darach*, Gaelic).  
Colquhoun—hazel.  
Cumming—sallow, *salix* (*seileach*, Gaelic).  
Drummond—holly (*creil thionn*, Gaelic).  
Forbes—broom (*Cytisus scoparius*).  
Ferguson—poplar.  
Gunn—rose-root (*Rhodiola rosea*).  
Grant—cranberry (*Vaccinium oxycoccus*).  
Macalister—fine-leaved heath (*Erica cinerea*).  
Macdonald—cross-leaved heath (*Erica tetralix*).  
Macdonell—ling (*Calluna vulgaris*).  
Macrae—savin-leaved clubmoss (*Lycopodium alpinum*).  
Macfarlane—cloudberry (*Rubus chamaemorus*).  
Macgregor—pine.  
MacLachlan—mountain ash (*Pyrus aucuparia*).  
Maclean—crowberry (*Empetrum nigrum*).  
Macleod—red whortleberry (*Vaccinium vitis-idaea*).

- Macnab—bramble (*Rubus*).  
 Murray—juniper.  
 Ogilvie—hawthorn (*Cratægus oxyacantha*).  
 Oliphant—maple.  
 Robertson—brake, or bracken (*Pteris aquilina*).  
 Ross—arbutus.  
 Sinclair—trefoil (*Trifolium*).

## ESTHER.

Thank you, Mamma. I should like to copy this list, and will try to add the badges of the other clans which you do not enumerate, as perhaps I may get some of our Scotch acquaintances to tell them to me.

## HENRIETTA.

Is the trefoil, Aunt, which you mention as the emblem of the Sinclairs, the same as the Irish shamrock?

## MRS. F.

What the true shamrock is, has given rise to many learned disputations; some writers identifying it with *Medicago maculata*, others with the wood sorrel (*Oxalis acetosella*), with whose elegant little spring flower you are all well acquainted. The advocates for the pretensions of this plant assert, that the clover (*Trifolium repens*) is not a common wild plant in Ireland; but I do not, I confess, trouble myself with this con-

troversy\*, being content to receive, as the real shamrock, that which is worn as such by the Irish on St. Patrick's day.

HENRIETTA.

Pray, Aunt, when was the Irish harp introduced into the arms of the King of England?

MRS. F.

It was James the First who added it to the royal achievement; and it was also this king who first had the unicorn as one of the supporters of the Royal Arms.

HENRIETTA.

But were not the lion and the unicorn always the royal supporters?

MRS. F.

No, they varied much with the different sovereigns—Edward III. had a lion and an eagle; Henry IV., a white antelope and a white swan; Henry V. and Henry VI., an antelope and a lion; Edward IV., a black bull and a lion; Edward V., a yellow lion and a white lion.

HENRIETTA.

Aunt, I know that Richard III. had a boar,

\* See Journal of Royal Institution.



because Shakspeare calls him "the boar," and sometimes, in derision, the "hog."

MRS. F.

Yes, a white boar was the crest of the York family, and was borne by Richard, with a yellow lion. Henry VII. had a lion and a red dragon; Henry VIII., Mary, and Elizabeth, all bore a lion and greyhound; but when James I. came to the throne, he added the unicorn, which was the arms of Scotland, and this, with the lion, have, since his reign, always been the supporters of the British Arms.

ESTHER.

Who is it, Mamma, that are entitled to bear supporters to their arms? I thought it had been only peers, but I see that there are many others who do so.

MRS. F.

Supporters are used by all peers, and are also borne by their eldest sons (if above the degree of baron), but the younger sons are not allowed to use them. The practice of the kings of England granting supporters to the peers of each degree, began in the reign of Henry VIII., as did that of giving them to Knights of the Garter and of the Bath. The Nova Scotia baronets

are, by their patents of creation, allowed to carry them, although the same privilege was not extended to the English baronets, at the time of the institution of the dignity, it being only by virtue of a royal licence that any of the baronets bear them. Another curious anomaly with regard to supporters is, that the kings of arms in England are not authorised, without a royal warrant, to grant supporters to any one below the dignity of Knight of the Bath; and yet Lyon King of Arms, in Scotland, may, by virtue of his office, grant them without the royal warrant, and has, indeed, on some occasions, exercised his privilege.\*

#### ESTHER.

I have read that the custom of having supporters to arms originated in the ancient practice at tilts and tournaments, of knights causing their shields to be carried by servants or pages, under the disguise of lions, griffons, Moors, &c., who also held and guarded the escutcheons which the knights were obliged to expose to public view some time before the lists were opened. Pray, Mamma, do heralds now go round to register the arms of the different families, as they used formerly to do?

\* Clarke's Heraldry.

MRS. F.

No; that custom has been abandoned; the earliest visitation was in 1529, the latest in 1686.

HENRIETTA.

What was their object?

MRS. F.

These visitations were conducted every thirty years by Norroy in the north, and by Clarendon in the south of England. On these occasions each of these kings at arms, attended by their suite, summoned the neighbouring gentry to their county town, to have enregistered the births, deaths, and marriages that had occurred in their families since the last visitation. Such persons as had usurped titles or dignities, or had borne ensigns of gentility which did not belong to them, were obliged, under their own hands, to disclaim all pretence or title to them, and, for their presumption, they were moreover degraded by proclamation made by the common town crier in the market place nearest to their abode; and, under the names of these plebeians who had assumed coats of arms, was written "*ignobiles*,"\*

\* Lawrence on the Nobility of the English Gentry.

ESTHER.

What confusion, what stripping of borrowed plumes would such a visitation cause now, when so many assume arms to which they have no title, and all style themselves "*gentlemen*."

MRS. F.

Yes; it is quite absurd to see how indiscriminately the title is applied; but I believe that this abuse of it is mostly confined to England. In France they are not so ridiculous; on the contrary, when the King holds a court, it is thus announced:—"Demain matin, le Roi recevra les *hommes* et les *femmes*;" and when he addresses the united Chambers of Peers and Deputies, he styles them "*Messieurs*." In short, there is no degradation to persons of quality to be called *men* and *women*; but, by following up a different system, and calling a mixed society "*gentlefolks*," we have destroyed the true meaning of the word in England.\*

FREDERICK.

Then what is, after all, the true meaning of the term "*gentleman*?"

MRS. F.

That is, perhaps, rather a difficult question

\* Lawrence on the Nobility of the English Gentry.

to answer, but I will endeavour to explain it as well as I am able. According to an old writer\*, "Gentlemen be those whom their blood and race doth make noble or known." "The Commonwealth of England is governed by three sorts of persons:—the Sovereign; the *Gentlemen* (which are divided into two parts—the Barony or estate of Lords, and those which be no Lords, as knights, esquires, and simple gentlemen); the third and last sort of persons are named Yeomen."

ESTHER.

Then this division identifies noblemen and gentlemen in the same class?

MRS. F.

Yes. Nobility means notability; noble is, worthy of notice or being known. Any individual who distinguishes himself may be said to ennoble himself. A prince judging him worthy of notice, may give him letters of nobility. *Nobility*, therefore, may be acquired—*gentility* must be innate. *Noblemen* may be only persons of rank and distinction, but *gentlemen* must be persons of family and quality, inasmuch as it comprises birth as well as notability. *Gentility*, therefore, is obviously superior to nobility.

\* Sir T. Smith, who died in 1577.

## ESTHER.

Yes; I well recollect the answer of James I., who, when asked by his nurse to make her son a gentleman, replied, "My good woman, a gentleman I could never make him, though I could make him a lord;" thus marking the distinction you have just drawn between the two appellations.

## MRS. F.

I have been the more particular in enforcing this distinction upon your attention, because it is among the gentry, not among the peers, that we must seek the true nobility of England. There are, perhaps, not above four to five hundred peers in Great Britain, but there are upwards of thirteen thousand of ancient nobility. The landed proprietors are, in every country, the natural nobility; hence, in the opinion of the genealogist, those families whose names are the same as their estates, such as Ratcliffe of Ratcliffe, Wolseley of Wolseley, &c., are the noblest families in their respective provinces. Could any title add to the nobility of the Wynns, or to that of the Hampden, upon whose tomb is inscribed "John Hampden, 24th hereditary Lord of Great Hampden?" Hence some of the old writers very properly speak of the nobility, *named* and *unnamed*, that is, titled and untitled.

ESTHER.

One question more, if you please, Mamma : what is the meaning of the term "commoner?"

MRS. F.

In a legal sense, all are commoners who are amenable or subject to *common* tribunals; the peers, therefore, are not commoners, because they are their own judges, this being an exclusive privilege, but no proof of nobility; for many persons who have precedence over peers are subject to the common law.

HENRIETTA.

Will you give us some examples, Aunt?

MRS. F.

Not only the sons of dukes and marquises, but even the princes of the blood, and sons of the king, if accused before they are made peers, must be tried by common juries. So also would prince Leopold (the present king of Belgium), who, having no peerage, ranks as the first commoner, and is amenable to common courts accordingly.\* But, now that I hope I have made these distinctions sufficiently clear to you, suppose we return to our original subject, the arms,

\* Lawrence.

or rather emblems which have been adopted, at different times, by the various rulers of England. To begin then by the Saxons, what was theirs?

HENRIETTA.

A horse ; and it is still the arms of the county of Kent, for we see the horse rampant, on all the pockets of Kentish hops.

ESTHER.

And it has also re-appeared in the English arms, in the running Hanoverian horse, which was added to the royal achievement, in an escutcheon of pretence, on the accession of George I.

MRS. F.

But gently ; I have much more to say about the horse, before we descend to such modern times.

FREDERICK.

The Carthaginians had a horse upon their coins, and the Agrigentines used to pay funeral honours to those horses which were victorious in the Olympic games ; and indeed some writers assert that they erected monuments to their memory.

MRS. F.

Well remembered, Frederick ; but it was



among the Germans that the horse was a particular favourite. Being essentially a war-like people, devoted to the chase, and indifferent to agricultural pursuits, it formed an important part of their property. Superstition also had a great part in the value which the Germans attached to their horses. They used to sacrifice them, and they also employed them to predict the future. Those which were consecrated to this latter use were quite white, had never been used for labour, and were fed in the sacred woods which served them as temples. On stated occasions they were harnessed to a car appropriated to that purpose, and also considered as sacred. The king, the prince, or the priest of the people accompanied them, and predicted the future by their neighings.

#### FREDERICK.

It was by the neighing of his horse that Darius (father of Xerxes) gained the throne of Persia.

#### MRS. F.

True; but to return to the Germans: their laws prove the value that they set upon their horses; the fine for stealing one being forty-five pence, while it was only thirty-five for stealing a slave. A man, after he was unable to carry arms and ride on horseback, was consi-

dered to be no longer fit to live, and was incapacitated from disposing of his property. The gigantic horse cut out of the chalk bank, which still exists in the south-west of the hill, near Edrington, in Berkshire, and which occupies an acre of ground, and may be seen in some points at a distance of twelve miles, is supposed to have been cut at some later period in commemoration of the victory gained there by Alfred over the Danes.\*

ESTHER.

Did not the chiefs often take the name of a horse? Horsa for instance?

MRS. F.

Yes, and Hengist also, both names signifying a horse in the Anglo-Saxon language. Indeed all the names ending in *mar* or *mer*, such as Waldemar, Hincmar, &c., appear to be derived from some names of horses.

ESTHER.

The Germans used to eat horse flesh.

MRS. F.

Yes, and esteemed it one of their favourite

\* Wheatman's History of the Northmen.

dates. St. Boniface\* addressed Pope Gregory HL to know what course he should pursue, and the Pope desired him to prohibit it; but it was not easy to make the Germans listen to this prohibition, and it required fresh injunctions from the succeeding Pope to induce them to discontinue this repast, it being accompanied by a similar prohibition with respect to hares, beavers, storks, and crows, which were all eaten by the Germans.† But we are digressing very far from our subject: now, who will tell us the Danish standard?

MARY.

The raven.

ESTHER.

Yes; during the reign of Alfred, when the Saxons defeated the Danish fleet, which, under Hubba, had blockaded them in the castle of Kynwith, in Devonshire, and Hubba himself

\* St. Boniface (better known as St. Winifred), a native of Devonshire, and the apostle of the Germans. In 716 he gained permission of the Pope to preach the gospel in Germany, of which country he was made primate, and he afterwards converted Pepin. To him, the Germans are under the greatest obligations. He preached Christianity among them, procured them teachers in religion and in science, abolished the use of horse flesh, and did not shrink from laying down his life in the cause, being massacred in 755.

† Schmidt, *Histoire des Allemands*, Vol. i.

was slain, they obtained, in addition to an immense booty, the famous magical standard of the *Reafen*, the loss of which was a fatal presage to the Danes. This banner, adorned with the figure of a raven, is said to have been woven by Hubba's sisters in one noontide. It was believed that the bird appeared as if flying when the Danes were to conquer, but was motionless when they were threatened with defeat.\*

MRS. F.

The raven is, I know not why, considered as the emblem of constancy, and is, among the Swedes, as sacred a bird as the stork among the Dutch.

ESTHER.

Or the crane among the Calmucs; for I was reading in the travels of some Russian missionaries, that, when their servant shot a crane, the greatest horror was expressed by the bystanders, who quoted an old proverbial saying among the Calmucs, that "the man who killed a crane would be punished by fate." They prophesied heavy misfortunes for the deed upon the servant, who became at last so intimidated by their denunciations, that it was some time before his master could calm his apprehensions.

\* Wheatman's History of the Northmen.

MRS. F.

Thank you, Esther; but now let us endeavour to proceed with our emblems. That of Stephen comes next, which was a Sagittarius, because he entered England when the sun was in that sign of the zodiac.

HENRIETTA.

Then it must have been in the month of November.

MRS. F.

Yes; and another reason assigned for his adopting it is, that he obtained a great victory chiefly by the help of his archers. Stephen, therefore, took this sign for his arms, and discontinued bearing his paternal arms.

ESTHER.

We now come to the Plantagenets.

MRS. F.

Who bore the *Genista* or broom, as their device. It was first adopted by the grandfather of Henry II., Fulk, Count of Anjou, who bore the broom branch in his pilgrimage to the Holy Land. From this circumstance the name of Plantagenet (*Planta-genista*, or *genêt* in French,) descended to our kings.

P

HENRIETTA.

But what made him fix upon the broom ?

MRS. F.

Because it was the fittest emblem of humility; the brick and marble floors, which were then strewed with rushes or odoriferous herbs, being, in the season, covered with the fragrant flowers of the broom. When Louis IX. married Margaret of Anjou, he instituted an order of knighthood; but, in token of his humility, he adopted the broom flower, which, with the *fleur de lys*, was enamelled alternately on the collar. The motto was "Humiles exaltat."

FREDERICK.

That is, "He exalts the humble."

MRS. F.

Edward III., as you all know, was the first to assume the *fleurs de lys* in the royal escutcheon. He bore them (what the heralds term) *semée*, that is, irregularly strewed over the field, without any regard to number. It was Charles VI. of France, that first reduced their number to three.

ESTHER.

The *fleur de lys* is a very ancient symbol. In

the temple of Dendera, among the hieroglyphics, is frequently to be seen a sceptre, surmounted by a *fleur de lys*, resembling exactly that of the kings of France.\* In several eastern countries it was the emblem of power; the kings of Syria and Babylon bore it at the end of their sceptre; and Montfaucon mentions a manuscript of the tenth century, in which is engraved a figure of David, with a sceptre surmounted by a *fleur de lys*.

HENRIETTA.

But the *fleur de lys* is not like a lily.

MRS. F.

Many and various are the hypotheses concerning the origin of this emblem: some say it is the head of a French battle axe; others, the iron of a French javelin or spear head; while those who advocate its floral origin consider it to be the representation of the common Iris, or Flower de Luce, which, when two of the petals are viewed in profile, and the third fully expanded, offers a fancied resemblance to the *fleur de lys*. Louis VII., when engaged in the second crusade, took this figure for his arms; and, as the common people generally contracted *Louis* into *Luce*, it is natural to imagine that this

\* Sonnini's Travels.

flower was, by corruption, distinguished, in time, by the name of the Flower de Luce, or Louis. When Louis VII. caused his son Philip Augustus to be inaugurated at Rheims, he had all his clothes embroidered with the *fleur de lys*. \*

## ESTHER.

The lily and the rose have, from high antiquity, been usual as emblems of the Church†, and generally accompany, either separately or together, the paintings of the Virgin Mary.

## MRS. F.

A rose was the seal of Luther, and a golden rose was often the present of the popes to a favoured sovereign.

## ESTHER.

Yes; I recollect reading that one was sent by Alexander III. to William King of Scotland; another by Alexander VI. to Henry VIII.

## MRS. F.

And another by Innocent X., in 1651, to Louisa of Gonzagua, the queen of John Casimir, King of Poland, at the same time that he presented the king with a consecrated sword

\* *La Pluche, Spectacle de la Nature.*

† "I am the rose of Sharon and the lily of the valley," &c.

‡ *Clarke's Travels in the Holy Land.*



and banner.\* The rose was considered as an emblem of the mortality of the body, the gold of which it was made, of the immortality of the soul.

FREDERICK.

The rose was dedicated to Aurora, as an emblem of youth.

MRS. F.

And to Cupid, because of its fugacity, as Tasso expresses it :

*" Così trapassa al trapaasar d' un giorno  
Della vita mortale, it fiore e 'l verde."*

G. L. c. xvi. 13.

But did you ever hear the origin of the term "under the rose" as an indication of secrecy? It is an expression you may probably never have heard, but I allude to it on account of the custom which gave rise to it. Cupid is said to have given a rose as a bribe to Harpocrates, God of Silence; from this originated a practice which prevailed among the northern nations, of suspending a rose from the ceiling over the upper end of their tables, when it was intended that the conversation which took place should be sacred to secrecy. It is this custom, undoubt-

\* Salvandy, *Histoire de Pologne*, vol. i.

edly, which first gave rise to the common expression "under the rose."\*

**FREDERICK.**

The white rose sprang from the tears of Venus; the red from a wound she received from a thorn in her foot when running about the woods in search of Adonis. But you have not yet alluded to it, Aunt, in the wars of the houses of York and Lancaster.

**MRS. F.**

They were first assumed by John of Gaunt and his brother Edward Duke of York, from whom the two rival houses descended, and who therefore took them as their distinctive badges, until the termination of the civil war by the marriage of Elizabeth of York with Henry VII., when the two roses united in one became the royal badge of England. The rose or rosette to the shoe was worn under the house of Tudor, but declined under the Stuarts, when the fashion of shoe-strings arose. I think there is now only one English emblem which we have not mentioned, and that is, the hawthorn.

**HENRIETTA.**

When was that used?

\* Medical Botany.

MRS. F.

We have mention made of it at the meeting of the Field of the Cloth of Gold. It had been a popular emblem among the English since the battle of Bosworth Field, from the circumstance of the crown of Richard having been found on that day lying under a hawthorn bush, whence it was taken to place it upon the head of Henry VII. Who can tell me what was the device of Francis I. at that famous meeting with Henry VIII.?

ESTHER.

I do not know, Mamma.

MRS. F.

It was a salamander, with the motto "I cherish the good and extinguish the bad."

FREDERICK.

But, Aunt, it is not true that salamanders can live in the fire?

MRS. F.

No; but the idea is not so destitute of foundation as we commonly suppose. Bosc, a French naturalist, says, that salamanders emit from their skin a lubricating, white fluid, when they

are annoyed ; and, if put into the fire, it sometimes happens that this fluid extinguishes it sufficiently to permit the animal to escape. When touched, the skin of the terrestrial salamander will transude the white fluid, which is extremely acrid, and produces a very painful sensation upon the tongue. It sometimes throws it out to the distance of several inches ; the scent of this fluid is very disagreeable, and will poison small animals, although it does not appear to affect large ones. Mr. Kirby relates the following anecdote in support of the above account :—Some ladies at Newbury had a very damp cellar which was frequented by frogs, and a kind of newt or salamander of a dull black colour. Several frogs were put into a pail, and while the ladies were looking, one frog after another turned itself on its back, its legs stiffened, and it died. One of these efts they found running quickly among the frogs, each of which, when touched, died instantly, the animals evincing the greatest horror at their enemies. A few nights afterwards, one of these efts was found in the kitchen, and the cook took it up with the tongs and threw it into a good fire. The reptile slipped, like lightning, through the coals, and ran away apparently unhurt. Thus we see there is some degree of truth in

the fable of the salamander, and, indeed, we shall find, that most of the imaginary accounts of the ancients rest upon some foundation, however slight it may be.

## CHAPTER XV.

## THE GIPSIES.

GIPSIES. — HINDOO ORIGIN. — MAJOR KEPPEL'S ACCOUNT OF THEM. — ROGERS'S DESCRIPTION. — SORTES VIRGILIANÆ, HOMERICÆ AND SANCTORUM. — ROMAN NUMBER SIX. — NINE OF DIAMONDS. — YEAR 88. — COUNTESS OF ALBANY. — LAST OF THE STUARTS. — TOMB IN ST. PETER'S. — THE LADY ARABELLA. — QUEEN ELIZABETH — HER VANITY AND LOVE OF DRESS. — ANECDOTES OF HER COURT. — LEARNED LADIES. — ANNE OF CLEVES. — ANGLO-SAXON NEEDLEWORK. — SPINSTERS. — HYPATIA. — VITTORIA COLONNA. — HELEN CORNARO PISCOPIA. — NOVELLA D'ANDREA. — CLOTILDA TAMBRONI. — LAURA BASSI. — AGNESI. — ENGLISH FEMALE SCIENCE.

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“ I see a column of slow-rising smoke  
 O’ertop the lofty wood that skirts the wild.  
 A vagabond and useless tribe there eat  
 Their miserable meal. A kettle, slung  
 Between two poles upon a stick transverse,  
 Receives the morsel — \* \* \*

\* \* \* Hard-faring race!

They pick their fuel out of every hedge,  
 Which, kindled with dry leaves, just saves unquench’d  
 The spark of life. The sportive wind blows wide,  
 Their flutt’ring rags, and shows a tawny skin,  
 The vellum of the pedigree they claim.  
 Great skill have they in palmistry, and more  
 To conjure clean away the gold they touch,  
 Conveying worthless dross into its place;  
 Loud when they beg, dumb only when they steal.”

COWPER’S TASK.

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## MARY.

MAMMA, there’s a gipsy at the door; may I  
 have my fortune told?

MRS. F.

Indeed, Mary, I cannot consent to anything so foolish and so wrong. So, take off your bonnet, and I will give you some account of this idle race.

MARY.

Where do they come from ?

HENRIETTA.

From Egypt, to be sure.

MRS. F.

Gently, Henrietta ; do not decide with such confidence upon a subject on which the learned are so much in doubt. Besides, even if you *had* been correct, a little more modesty had been more becoming. I am always pleased when you are able to give a ready answer to my inquiries ; but believe me, that knowledge is of little good unless it lead to that true wisdom which teaches us to think humbly of ourselves. The truly wise are always the most humble, because, the more they learn, the more sensible they are of how little they know. Sir Isaac Newton's opinion of his own splendid results you all know\*, and Solon, one of the wisest of

\* " I know not (said he) what the world will think of my labours, but, to myself, it seems that I have been but as a child playing on the sea-shore, now finding some pebble rather more polished, and now some shell rather more agreeably variegated than another, while the immense ocean of truth extended itself *unexplored* before me."

heathen philosophers, declared, that all he had learned from his knowledge was, "that he knew nothing." But, to return to the gipsies:—Grellman, a German author, who had entered into a minute investigation of the subject, supposes them to be of Hindoo origin, probably of the lowest castes, a conjecture which he founds upon the similarity of language between the Egyptians and the Hindoos.

MARY.

Do not these gipsies speak English?

MRS. F.

Not among themselves; they then converse in a jargon or language unintelligible to others. There appears to be a striking coincidence in the grammatical construction of the Hindoo and gipsy language; many of their manners and customs closely resemble each other, and Grellman collected four hundred words from the gipsies, all of which were nearly synonymous with the Hindoo.

HENRIETTA.

But how did they come into Europe?

MRS. F.

Grellman supposes that, in the war of devastation carried on in the years 1408 and 1409 by Timur Beg —



HENRIETTA.

I beg pardon for interrupting you, but is he the same as Tamerlane?

MRS. F.

Yes, he is. His wars are supposed to have driven the gipsies through the Persian district, along the Persian Gulf, through Arabia Petræa, across the Isthmus of Suez into Egypt. Mary, I am particular in giving you their exact route, that you may trace it on the map.

MARY.

Thank you, Mamma.

MRS. F.

Entering Europe, as they did, by Egypt, they acquired the name of Egyptians, corrupted into *Gipsies* in English, *Gitano* in Spanish, *Zigeuner* in German, *Cingani* in the Hungarian, and *Zingari* in the Italian languages. In Germany, they were first observed in 1414. Muratori quotes a writer who says, that in 1422, two hundred *Cingari* appeared in the town where he lived, and stated that they came from India; and Munster, in 1524, gathered from a gipsy, accounts which proved his impression of their having come originally from India.

ESTHER.

But do not some people suppose them to be really Egyptians?

MRS. F.

Yes; and those who advocate their Egyptian origin, assert, that when Selim conquered Egypt in 1517, several of the nations refused to submit to the Turkish yoke, and revolted, under one *Zinganeus*, whence the Turks called them *Zinganees*, but that being, at length, surrounded and banished, they dispersed all over the world.

MARY.

Were they always fortune-tellers?

MRS. F.

Yes, from the very first they derived their subsistence from practising the black art, palmistry, begging, and stealing. Nevertheless, whatever may have been their origin, it is certain, that they appeared in great numbers, and, as it were, simultaneously, in almost every country in Europe, in the fifteenth century. In 1560 they were expelled from France; in 1591, from Spain; and from England, at an early period; for in 1500, there is a statute of Henry VII. against them. The manner in which they have

spread is incredible; Europe cannot contain less than 700,000.

ESTHER.

But where do they chiefly reside?

MRS. F.

The south-eastern countries, Hungary and Transylvania, are their principal abodes, where, in summer, they reside in tents; in winter, in holes ten or twelve feet deep in the earth. They possess a sort of regular government, and are ruled by a leader or chief. In Turkey, also, they are every where to be found. Mary, give me Major Keppel's Travels across the Balkan, and I will read the passage in which he describes them:—"On the left hand side of the road, we saw twenty black tents pitched in a straight line, with two flags, one white and the other red, fixed at the right flank. These formed an encampment of gipsies, which had stationed itself there to welcome, with a band of music, a bride who was to pass in that direction on her way to her future husband. \* \* \* The tents of the wanderers closely resemble those of the Illyants which I had seen in the Arabian desert. Gipsies are to be seen in every part of Turkey; I constantly fell in with them in the course of my journey. The largest encamp-

ment that I ever saw was at Shumla, where they were assembled to the number of some thousands. The appearance of their women is always most striking in a Mahometan country, where such rigid notions are entertained of female decorum. Nothing can be more strongly contrasted than the uncovered face, the upright carriage, the fearless and almost fierce demeanour of a well-formed gipsy girl, with the veiled features, shuffling walk, and timid, downcast look of a round-looking female of the Turkish race. The gipsies conform to the prevailing religion of the country in which they may chance to be. Thus, they are Christians in Wallachia and Moldavia, and, generally speaking, Mussulmans to the southward of the Balkan. Their creed, however, sits loosely upon them; as they follow it no farther than it accords with the habits of their tribe; consequently, those who profess the Mahometan faith are not acknowledged by the more rigid Osmanli, who hates them as infidels, and dreads them as magicians." \*

Thus you see, that the gipsies are every where the same vagabond race, every where alike incapable of receiving education. Religion they have none, but adopt, as Major Keppel states,

the creed of the country in which they dwell. Music is the only science which they know; and, unchanged by climate either in habits, complexion or physiognomy, this singular people have now, for four centuries, overspread the face of Europe, without any distinct account having been gained of their origin. A cloud has, and probably always will, hang over the descent and first appearance of this most mysterious race.\*

#### HENRIETTA.

Thank you, Aunt; I shall now take greater interest in gipsies than I have ever before felt: but how strange that people should be so superstitious about fortune-telling.

#### MRS. F.

The weak are always superstitious, the greater the ignorance the greater the credulity; but in England, where there are, I believe, fewer gipsies than in any country of Europe, the increase of knowledge among all classes has rendered their pretended arts of little avail; and were they not to pursue some other trade, their skill in palmistry would not suffice to procure them a subsistence. The sanguinary laws which formerly existed against them in England have

\* Bright's Travels in Hungary.

been repealed. Who recollects the faithful and elegant description of them which is given by Rogers in his "Pleasures of Memory?"\*

ESTHER.

I do not think that any of us do. Shall I get the book and read it?

MRS. F.

If you please.

" Down by yon hazel copse, at evening, blazed  
The gipsy's faggot — there we stood and gazed ;  
Gazed on her sun-burnt face with silent awe,  
Her tatter'd mantle, and her hood of straw ;  
Her moving lips, her caldron brimming o'er ;  
The drowsy brood that on her back she bore,  
Imps, in the barn with mousing owlets bred,  
From rifled roost at nightly revel fed ;  
Whose dark eyes flash'd thro' locks of blackest shade,  
When in the breeze the distant watch-dog bay'd :—  
And heroes fled the Sibyl's mutter'd call,  
Whose elfin prowess scaled the orchard-wall.  
As o'er my palm the silver piece she drew,  
And traced the line of life with searching view,  
How throb'd my fluttering pulse with hopes and fears,  
To learn the colour of my future years !

MRS. F.

Thank you, Esther.

\* 1st Part.

FREDERICK.

Aunt, relative to superstition, how much the Romans were influenced by it in their *Sortes Virgilianæ*\* and *Homericæ*, which were but a kind of fortune-telling.

MRS. F.

Yes, superstition, as one of the old writers says, is the greatest burthen of the world, and the Romans were not exempt from the common weakness. The *Sortes Virgilianæ* and *Homericæ* were succeeded by the *Sortes Sanctorum*, or divinations by the Bible; and this had become so common in the fifth century that it was expressly forbidden by several councils†, though they were never able to suppress it entirely; for in the beginning of the eighth century, when, indeed, ignorance had attained its greatest pitch‡, we find it preserved, among other superstitious practices, such as divination from the flight of birds, magic, &c.

ESTHER.

But this species of divination is retained by

\* Charles I. and Lord Falkland tried the *Sortes Virgilianæ* when in the Bodleian Library: Charles opened the *Æneis* at b. iv. l. 613., and Lord Falkland at b. xi. l. 152.

† At that of Vannes, A. D. 465; Agde 506; and Auxerre, 578; and they are again forbidden in 793, by an edict of Charlemagne.

‡ Schmidt.

the nations of the East to the present day ; and Nadir Shah twice decided upon besieging cities, by opening the poems of Hafiz.

FREDERICK.

Then there was the Roman superstition respecting the number six.

MRS. F.

Oh ! you allude to the saying, "Semper sub sextus perdita Roma fuit," or, "Under six Rome was always lost."

HENRIETTA.

Whence did this idea originate ?

MRS. F.

From a singular coincidence of circumstances. Tarquinius *Sextus* was the worst of his race, and his conduct, as you all know, led to a revolution. Under Urban the *Sixth* the grand schism of the West broke out. Alexander the *Sixth* outvied all his predecessors in wickedness, and it was in his reign that the line above quoted was written. To this we may add another example of the fatal coincidence in Pius the *Sixth*, who was led captive by the French, and treated with ignominy and oppression.



## HENRIETTA.

Did not Pius VI. live at Fontainebleau during his captivity in France?

## MRS. F.

Yes; I have seen the room he occupied; this, and the pen with which Napoleon is said to have signed his abdication, are the two great objects of curiosity shown to the traveller who visits the royal palace.

## HENRIETTA.

I heard Mr. Campbell make an observation the other day, when he was playing cards, which I did not understand. He called the nine of diamonds "the curse of Scotland."

## MRS. F.

That is a Scottish saying, which originated in the circumstance of the Duke of Cumberland having written, on the eve of the battle of Culloden, the order for no quarter to be given upon the back of a nine of diamonds, there not happening to be a piece of paper at hand. The story is related in different ways, but it is too unimportant to merit attention.

## ESTHER.

Then there is the year 88, which is remarkable as having been fatal to the Stuart family.

HENRIETTA.

How, Esther?

ESTHER.

In 1488, James III. lost a battle against his subjects, by whom he was pursued and assassinated.

In 1588, Mary Queen of Scots was beheaded.

In 1688, James II. abdicated the British crown; and

In 1788 died Prince Charles James Stuart, the last of the race who made any attempt to recover the English crown.

FREDERICK.

Are there any of the house of Stuart still alive?

MRS. F.

None. Cardinal York, who styled himself Henry the Ninth, and who was brother to Prince Charles, died at Rome in 1808, aged 82.

HENRIETTA.

Who was the Countess of Albany, of whom I have heard speak?

MRS. F.

She was the widow of the young Pretender, who was called in his childhood by that title, which

he afterwards resumed on his retirement into Tuscany. The Countess of Albany always bore the arms of England upon her carriage, and assumed the royal liveries. She died in 1824, at Rome, where she had resided the greater part of her life. In St. Peter's repose the mortal remains of the last of this unfortunate race; George IV. had a monument erected there to their memory, which, though the work of Canova, is hardly worthy of so great an artist.

#### ESTHER.

The Stuart family must ever claim our strongest interest, for, I believe, there exists not, in the record of history, a parallel instance of such an unvaried series of misfortune in one family.

#### MRS. F.

Justly observed, Esther; the greatness acquired by their ancestor\* when he married the heiress of Scotland, was indeed a fatal gift to his race, who became, for three centuries, the sport of fortune. Of those who ascended the throne, all passed a stormy life—many met with a violent death.

\* Walter, the fourth of that name, married Mary, daughter of Robert King of Scotland, and had a son, who became king in 1370, under the name of Robert II.

Robert III., second king of the Stuart family, died of grief.

James I. was assassinated.

James II. was killed at the siege of Roxburgh.

James III. died in battle against his subjects.

James IV. was killed at the battle of Flodden Field.

James V. died of grief.

Mary Stuart perished on the scaffold, but her son James I. passed his life in comparative tranquillity.

Charles I. was beheaded.

Charles II. was, for years, an exile.

James II. was compelled to abdicate, and his descendants were excluded for ever, from a throne which had been the source of an uninterrupted series of calamities to their house.

#### ESTHER.

And then there is the unfortunate Arabella Stuart, first cousin to James I., whose history from her birth to her death seems to be composed of projects of marriage. The factious intrigued to give her a husband, kings and queens watched over her with jealous vigilance to prevent her from having one, and she was treated as a state criminal because she had taken one of her own selection. Both Elizabeth and James

treated her with great severity, and her unjust imprisonment by the latter, undermined her reason and terminated her life.\*

HENRIETTA.

I shall always dislike Elizabeth for her cruelty to Queen Mary.

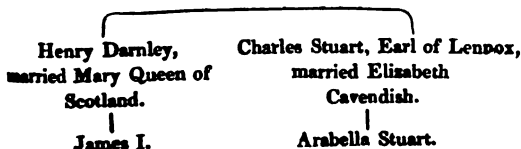
MRS. F.

It is indeed, a great blot in her character. The relative conduct of the rival queens has given rise to much controversy among historians, some advocating the part of Mary, others that of Elizabeth. The character of Elizabeth, as a woman, is much open to censure; her love of admiration, her ungovernable temper, her vanity, her favouritism, all overshadow a character which, when the circumstances of the times are taken into consideration, must be deemed, in many respects, worthy of admiration as a sovereign.

HENRIETTA.

But how very vain she was. I have read

\* The relationship was thus :—



that on an indifferent engraving being published of her, she desired that all the impressions might be destroyed, that her subjects might not have such an unworthy portrait of their sovereign.

#### ESTHER.

And then with respect to dress, she always wore false hair of a red colour, and appeared in a different dress every day of the year. She possessed the costumes peculiar to every country in the world, and when she died, nearly three thousand dresses were found in her wardrobe.

#### MRS. F.

In private, Elizabeth was plain and moderate in her dress, but she loved to make a display of magnificence and splendour, when she appeared in public. She then would wear high shoes, in order to make herself appear taller than she really was; and with the magnificent ruff which bears her name, the royal crown on her head, the golden ball in her left hand, the sceptre in her right, her whole dress one latticework of pearls, glittering in jewels, and surrounded by her no less splendid court, she might well dazzle people with her regal magnificence, when she appeared, thus attired, on the first day of Parliament.

## ESTHER.

But what flattery she exacted from every one who approached her, and what absurd answers they were obliged to give, in order to satisfy her thirst for adulation. The Scotch ambassador was required by her to say which bore the palm of beauty, Elizabeth or Mary; and he could only release himself from his awkward predicament by assuring her "that Mary was the handsomest woman in Scotland, as Elizabeth was in England."

## MRS. F.

The Spanish ambassador, when asked by Elizabeth, what he thought of the ladies of her court, gave an answer well adapted to please the inquirer.

## FREDERICK.

What was that, Aunt?

## MRS. F.

"That it was hard to judge of the stars in the presence of the sun:" and then Sir Walter Raleigh, too, on the occasion of asking the Queen to confer some new favour upon him, when the Queen replied, "When, Sir Walter, will you cease to be a beggar?" the subtle courtier answered, "When your majesty ceases to be a benefactor."

ESTHER.

A most specious reply.

HENRIETTA.

With all her childish vanity, Elizabeth was a very learned woman.

MRS. F.

Yes ; her tutor Ascham places her at the head of the lettered ladies of England of her time. Her proficiency in Latin and Greek is well known ; and it is not many years since her translation of Boethius was discovered in the State Paper Office. Her unfortunate rival, Mary of Scotland, also ranks among the learned ladies of the age. When at Paris, she delivered a Latin oration in the hall of the Louvre, with so much grace and eloquence as to fill her hearers with admiration ; and Elizabeth, as you probably know, gave answers in Latin and Greek to the addresses of the two Universities. You should read Roger Ascham's letter, in which he gives an account of the proficiency of his pupils, Elizabeth, Lady Jane Grey, Edward VI., and Mary. At that time, the ladies of the court studied Latin, Greek, Spanish, French, &c. Indeed, under the example of Sir Thomas More, this more learned education of females had become general. His only



daughter, Margaret Roper, shone among the ladies of the age; and when we also recollect the classical education of Lady Jane Grey, of the four daughters of Sir Anthony Cook (the tutor of Edward VI.), Elizabeth, Mary, &c., we cannot wonder at the dislike that Henry VIII. took to Anne of Cleves, whose accomplishments are thus summed up by a contemporary writer:—"She could read and write her own language, and sew very well; as for music, it was not the manner of her country to learn it;" add to this, her unprepossessing appearance, it is not surprising that Henry should have so much disliked her.

#### ESTHER.

But, at any rate, she could work, and that was considered, in those days, a most necessary branch of female education.

#### MRS. F.

The Anglo-Saxon women were famous for their needle-work, and the English work was celebrated abroad for its excellence. The Anglo-Saxon lady would portray in embroidery the achievements of her husband, and, surrounded by her maids, would astonish even a modern female in the various kinds which she could execute. A lady of rank would often work a

whole set of hangings, &c.; and, indeed, by an old custom, women were prohibited from marrying until they had spun a regular set of bed-furniture; and till their marriage, they were termed *spinsters*, an appellation which is preserved to this day, in the publication of the banns, and in the courts of law.

ESTHER.

I was reading the other day an account of the barbarous murder of the celebrated Hypatia, the most learned lady of her age.

FREDERICK.

Who was she ?

ESTHER.

She was the daughter of a mathematician of Alexandria, and filled the office of professor of the Platonic philosophy in that city. Her eloquence was most persuasive, and she counted among her disciples many of the most learned men of the age; but, though the friend of the Bishop of Ptolemais, no persuasions could induce her to become a Christian. Attired in the mantle of a philosopher, modest and humble in her deportment, she soon became an object of jealousy to the envious and the base, and being unjustly looked upon as a bar to a reconciliation

between St. Cyril, Patriarch of Alexandria, and the governor of the city, who protected her from the fiery zeal of the former, she was attacked by some of the most violent partisans of St. Cyril, dragged from the school in which she was teaching, and most barbarously murdered in A.D. 415. Her works perished in the conflagration of the Alexandrian library.

MRS. F.

But it is to Italy that we must look for the ladies most learned in science and philosophy—ladies who have received doctor's degrees, and have filled professorships in Greek, philosophy, and the abstruse sciences; and yet the general state of female education in Italy must be placed at a low standard, notwithstanding these and many other bright exceptions.

HENRIETTA.

Aunt, we should all like very much to hear about these learned ladies.

ESTHER.

Was not Vittoria Colonna one of the most celebrated women of her age?

MRS. F.

Yes; but she is no less remarkable for her

feminine virtues and her conjugal affection. Wife of the Marquis of Pescara, who commanded the imperial troops at the battle of Pavia, it was from her advice and exhortations that the marquis had firmness to resist the insidious offers of the opposite party; and distinguished alike for her poetry, her elegant acquirements, and her erudition, Vittoria has equal claim to our admiration for her piety, her industry, and all the softer graces which adorn the female character. Her poetry is the best imitation of the style of Petrarch, and her talents and genius were, in short, of the highest order.

#### ESTHER.

Then, there is the Venetian lady, Helen Cornaro-Piscopia, who was made in 1678 doctor of philosophy in the University of Padua. She understood French, Spanish, Latin, Greek, Hebrew, and Arabic, sang the verses which she herself composed, and discussed with eloquence on mathematics, music, astronomy, theology, and the most abstruse points of philosophy.

#### MRS. F.

Yes; she died at the early age of thirty-eight, and under the vestibule of the University of Padua I have seen the marble statue which is

erected to her honour, and in which she is represented in the habit of St. Benedict, of which austere order she followed the rules, although she always lived in the house of her father. But it is Bologna which bears on its list more female doctors than ever appeared at any university — Novella d' Andrea, Tambroni, Bassi, and Agnesi, all of whom filled the chairs of different professors.

FREDERICK.

Pray tell us more about them, Aunt.

MRS. F.

The beautiful Novella d' Andrea belongs to an earlier age than the others; she was the eldest daughter of the most celebrated professor of canon law in the fourteenth century. The degree of doctor was conferred upon her by the Academy of Bologna, and she frequently filled her father's chair; but lest her beauty should disturb the attention of her auditors, she had a little curtain placed before her, whenever she taught in the schools.

ESTHER.

Next comes Clotilda Tambroni, who filled the chair of the Greek language at Bologna.

## MRS. F.

And then the no less celebrated Laura Bassi, a native of that city, and daughter of a doctor of laws. She early evinced a passion for study, and, at the age of twenty-one, publicly sustained a thesis in philosophy, and answered her opponents in the most elegant Latin. She soon after received the doctor's degree; and the same year the chair of philosophy, with the most honourable appointments, was bestowed upon her. She equally excelled in algebra, geometry, physics, Greek, poetry, and the belles lettres, and is described by a contemporary as singularly gentle and modest in her deportment, serious and unaffected, of a vigorous memory, accompanied by solid judgment and a lively imagination. She died in 1778. The last learned Italian to whom I shall now allude is the celebrated Milanese lady, Maria Agnesi, who died in the last year of the last century. She understood Latin at nine years old, and soon acquired Greek, Hebrew, French, German, and Spanish. At the age of nineteen she supported a hundred and ninety-one theses, and continued so to distinguish herself that, on her father being ill, she obtained permission of Benedict XIV. to supply his chair of mathematics at Bologna. She subsequently retired

from the world, and devoted the remainder of her life to charity and benevolence.

ESTHER.

Thank you, Mamma.

MRS. F.

I have now finished my catalogue of the ladies of Italy, although there are, perhaps, many others that might be enumerated. But in the nineteenth century, our own country stands pre-eminent in the annals of female science; and were it not in opposition to the retiring feelings of one who is humble as she is learned, a doctor's degree or a professor's chair might now be bestowed with equal justice upon an English lady as it was conferred upon those of Italy; but though eligible for the highest honours that science can offer, she is more content to shine in the path of domestic life, affording to us all a striking evidence that talents and pursuits of the highest order are not incompatible with a strict discharge of the relative and social duties.\*

HENRIETTA.

Then, Aunt, you do not object to learning in women?

\* Her "Connexion of the Physical Sciences" will, of course, be in the library of the youthful reader.

MRS. F.

Where a woman is gifted with talents, and capacity to aspire to the higher walks of learning, I see no objection to her following them: but recollect that it is with the Bible in our hands that we must enter the gates of science, and when accompanied by religious principles, and pursued with religious views, there is no fear of it becoming the knowledge "that puffeth up;" but rather, under higher guidance, it may lead from worldly wisdom to that which will alone make us "wise unto salvation."



## CHAPTER XVI.

## A MORNING WALK.

POLITENESS. — SILK-WEED. — PEAT MOSS. — SUN DEW. — MOSSES.  
 — TAR, PITCH, ETC. — STONE PINE. — RAVENNA. — WOOD OF  
 THE VINE. — DUCK'S NEST IN A TREE. — ROBIN'S CUSHION. —  
 GALL NUT. — MISTLETOE OF THE DRUIDS. — CHARCOAL BURN-  
 ING. — DERIVATION OF SEVERAL SAXON WORDS. — ON THE  
 STUDY OF THE SAXON LANGUAGE. — FERNS, EATABLE. — CAPIL-  
 LAIRE PLANT. — FERN SEED. — FUNGI, EATABLE. — DRY  
 ROT. — GLOW-WORM. — CLEANING INSTRUMENT. — CLAWS OF  
 BIRDS. — PROCRASTINATION.

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Needs no show of mountain hoary,  
 Winding shore or deepening glen,  
 Where the landscape in its glory  
 Teaches truth to wandering men.  
 Give true hearts but earth and sky,  
 And some flowers to bloom and die, —  
 Homely scenes and simple views,  
 Lowly thoughts may best infuse.

KEBLE.

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## ESTHER.

Come, Henrietta, we are all waiting for you.

HENRIETTA.

Can any one tell me where my bonnet is?  
Frederick, do you know?

MARY.

How should he be able to tell?

FREDERICK.

Henrietta asked me to take it up-stairs for her, and I said that I would presently; but I quite forgot it, and it must still be in the hall.

MRS. F.

The evil consequences of untidiness on the one side, and of procrastination on the other. You, Henrietta, should not have left your bonnet about; and you, Frederick, having promised to put it away, should have done so immediately. Few habits are productive of greater inconvenience than that of putting off what we have to do. In the first place, it often, when deferred, entirely escapes our memory; and even should it not, I think that the act ceases to be one of real kindness, if we consult our own convenience in the time of performing it.

FREDERICK.

I do not quite understand that, Aunt.

MRS. F.

Politeness has been justly designated to be "refined good nature." It does not consist in mere acts of form and ceremony, but in a total absence of all selfish feeling, and a consequent desire to please and oblige others, whatever the personal sacrifice may be. I therefore consider selfishness and real politeness to be incompatible, for my idea of politeness takes a wider range than that which is usually conveyed by the ordinary acceptation of the word: but here is Mary, with Henrietta's bonnet; so we are now ready. I propose taking a walk to the farm, and we will go through the wood, as it will be less dusty than by the road.

HENRIETTA.

Pray stop, Aunt, and look at the pretty brooms which this little girl has brought to sell; she calls them silk-weed.

MRS. F.

They are made of *Polytrichum commune*, which grows abundantly on the heaths about here. It is the largest species of moss known, excepting an exotic kind (*Timmia longiseta*). In this country, the silk-weed seldom exceeds a span in length, but in Alsace, we are told that it

will sometimes attain the height of half a yard.\* Take some of the little girl's brooms, Esther; and we will examine the moss, more at our leisure, when we return.

ESTHER.

But the common peat moss (*Sphagnum*) is also very long.

MRS. F.

Under peculiar circumstances, it will attain a great extent, it having been found by Dr. Greville, in a pool of water, a foot and a half long.† The *sphagnum* is one of the most abundantly diffused of all the mosses, and its whitish hue (tinged however with red, when the water has dried up and left it exposed to the action of the air and sun), makes its appearance very remarkable and distinct from all other genera. All the species are aquatics, and the *sphagnum palustre*, from its rapid growth, and from its property of throwing up new shoots in its upper part while the lower parts are decaying, is supposed to constitute a considerable portion of the great bogs of the North of Europe. In Alpine countries, most of the springs take their origin in large marshy plains, covered with

\* Sprengel.

† Hooker's *Muscologia Britannica*.

sphagnum. Its softness, its cotton-like texture, its facility of absorbing moisture, and the ease with which it is procured, render it fit to be applied to many purposes. The Lapland women make great use of it, and it would form a soft and delicate mattress or lining for the cradle of a child.\*

ESTHER.

I think it has been always upon this moss, that we have found the curious little sun-dew, (*Drosera*).

MRS. F.

Yes; and that still more singular plant of the same family, Venus' fly-trap (*Dionæa muscipula*), with whose irritability you must be all familiar, grows among the sphagnum; so does also the purple *Sarracenia*, and many other plants which are difficult of cultivation in our gardens.

ESTHER.

I read, the other day, that the sun-dew has the same appellation in French, *rosée du soleil*; and also in Latin, *ros solis*; the plant deriving this designation from the glandulous hairs which glitter upon its surface, and give it the appearance of being covered with dew.

\* Lamouroux.

MRS. F.

I am glad, Esther, that you take interest in the study of the mosses; for though among the smallest of vegetables, yet their structure is so curious and so complicated, as to form a fertile subject of interesting investigation. The variety of soil and climate in the different parts of the British islands gives us a larger number of species than, perhaps, is to be seen upon a like extent of country, in any part of Europe. The latest works enumerate about 290 British species. They chiefly delight in damp and shady situations; but they are by no means exclusively confined to these places of growth. Moss is found upon the stem of the cocoa nut, and others have been even gathered on the burning sands of the deserts, in the interior of Africa. In the Alps and Pyrenees, they are found at an elevation of 7000 to 8000 feet; on the northern border of Siberia, the entire soil is covered for a great extent with mosses; and the rocks of Spitzbergen and Greenland, and the coasts of the Icy Sea, are covered with them. Thus, from the Equinox to the Poles, there is scarcely any part of the world destitute of mosses; and the universality of this tribe, their disposition to grow where other plants are incapable of existence, makes the study of them, to my mind, the more interesting, as it enables us to find sources

of interest and instruction, where the inexperienced, unobservant eye would see nothing but a barren waste.

## ESTHER.

The trunks of trees, especially to the north side, have an abundant covering of mosses; and these, to the observant natives of the American wilds, are sure guides for the points of the compass, and thus serve to direct them through their pathless forests. This clothing is doubtless given to protect the bark from the inclemencies of the winter, and also to afford shelter to various tribes of insects which take refuge there in all seasons of the year; and the entomologist, by examining these tufts of moss, will find an abundant harvest of rare species to reward him for his labours\*; so thickly is creation animated, so truly is it that nothing is made in vain.

## HENRIETTA.

Look how the juice is running from that tree.

## MRS. F.

That is turpentine, which is exuding from the Scotch fir (*Pinus sylvestris*), the only British species of this numerous genus; but one of the most

\* Hooker.

useful of them all, as, independent of turpentine, it gives us tar and pitch.

HENRIETTA.

How is tar made ?

MRS. F.

The wood is cut into billets, and placed in a mound about eight feet in height, and thirty in diameter. This is covered with earth, and set fire to, at the top, similar to the process of charcoal burning. It is suffered to burn slowly with the imperfect access of the air; the tar runs off by a ditch made to conduct it, and is collected into barrels. Pitch is tar reduced by evaporation. Pitch, mixed with oil and suet, makes *shoemakers' wax*. The wood of the Scotch fir is the red deal, of the Norway spruce (*Pinus abies*) the white deal. From the latter the Burgundy pitch is obtained.

ESTHER.

The Laplanders also make bread of the bark of the Scotch fir. After selecting the tallest and least branching trees (as containing less resinous juice), the external bark is carefully removed, and the soft, white, fibrous, and stucculent matter collected and dried. When about to be converted into use, it is slowly



baked on the coals, and thus rendered porous and hard. It is then ground into powder, kneaded with water, and made into cakes, which are baked in an oven, and which the Laplanders eat during the greater part of the winter, and sometimes during the whole year.\*

MRS. F.

The word pine is derived from *pen* or *pin*, a crag or stony mountain, upon which the pine delights to grow: but who can tell me what that large fir tree is on the right.

ESTHER.

Is it not the stone pine (*Pinus pinea*)?

MRS. F.

It is: this is the tree which produces the large seeds which are so much eaten in Italy, where they are called *pignoli*. In Naples particularly, they are extensively used, and the people in the streets may be seen roasting the cones before the fire, in order to cause the scales to expand, and enable them to get at the seeds, which are as large as almonds.† This is the cone which we see placed in the Thyrsus of

\* Medical Botany.

† The seeds of *Araucaria imbricata* form the entire subsistence of an Indian tribe, who harvest them, and bury them in pits for winter use.

Bacchus, it being used as his emblem, from the circumstance of the ancients putting turpentine into their wines, in order to give them a flavour.

ESTHER.

This, I suppose, is the pine which we constantly see depicted in the landscapes of the Italian painters.

MRS. F.

It is. This species is abundantly diffused over Italy, and near Ravenna there is a large forest of stone pines, called the *Pineta*, which, in the time of Augustus, furnished timber for the Roman fleet; but which is, in modern times, more celebrated as having been the favourite walk of Dante, its gloomy foliage being well suited to the meditations of the author of the *Divina Commedia*.\*

ESTHER.

Ravenna must be a very interesting place.

MRS. F.

It is, indeed. Honorius, as you recollect, made it the seat of the western empire. It was successively taken by Odoacer and Theodoric; restored to the empire by the armies of Belisarius and Narses; in 568 became the residence

\* Dante refers to the *Pineta* in *Purgatorio*, c. xviii. l. 20.

of the Greek exarchs ; again fell a prey to the barbarians, when taken by Astolphus, king of the Lombards, in 752, and an end put to the exarchate. Astolphus was dispossessed by the arms of Pepin, who gave Ravenna to the church in 755 ; since which period, it has often changed masters, but was restored to the Pope in 1509, when it became the residence of a cardinal legate.

## ESTHER.

I suppose Ravenna is full of historical recollections.

## MRS. F.

In no city are more remains to be found of the works of the Lower Empire, and the number of domes and towers which are to be seen at a distance, give the city quite an oriental appearance. Here is a curious octagonal basilica, built under Justinian, in imitation of the church of St. Sophia, and the vault represents, in a large mosaic, the emperor, with Theodora and their court. The churches of Ravenna are full of Byzantine remains, and the cathedral contains the font for total immersion, the *ambones*, (or two pulpits in which the Epistle and Gospel were read), the Paschal chair, and many remains of the manner in which the interior of the churches was arranged in the primitive ages of Christianity, of

which we also find some specimens still existing at Rome. Near Ravenna is the celebrated church of St. Apollinarius, the only building which remains of the ancient town of Classe, formerly the port of Ravenna. In this church we have a series of portraits of all the archbishops of Ravenna, 126 in number, from the first, contemporary of St. Peter, to the present time; such as we have at St. Paul's at Rome, of the Roman bishops and popes.

ESTHER.

Is not the tomb of Theodoric also here, of which the dome or roof is composed of a single stone?

MRS. F.

It is; and so is that of Dante, a most unworthy monument to so great a man. These are a few of the objects of interest at Ravenna; and when we also recollect, that near it was fought the battle so glorious to France, but so fatal to Gaston de Foix and the flower of French chivalry\*, we must admit that Ravenna presents a series of historic recollections, which give a peculiar character and interest to the place.

ESTHER.

I think that I have heard you mention that on

\* Battle of Ravenna, fought on Easter Sunday, 1512.

the doors of the cathedral at Ravenna are nailed several planks of the old ones, which they replace; and that these planks, which are of the wood of the vine, are most of them a foot in diameter.

MRS. F.

Yes, they are quite as large as you state; an extraordinary size for the vine to attain.

"Oh, Aunt," said Frederick, who had run on before them, "look what I have found, a duck's nest in a tree!"

The party hastened to the spot, and found the nest of a duck, with some egg-shells still remaining in it, perched up in an oak tree, about ten feet from the ground\*, and the duck and its little brood were to be seen swimming in the pool adjacent.

MRS. F.

I have before heard of similar instances of ducks building in trees, but this is the first which has ever come under my own immediate notice. The wonderful part of the circumstance is, how the duck contrives to get her young ones down from so great a height, unless she carries them upon her back, as we see swans sailing about with their little

\* The ground was not level, but the nest was about ten feet from the ground.

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progeny. It is a point I long to ascertain; but I have never met with any one who had witnessed the manœuvre, and could tell me how it is effected.

ESTHER.

Frederick, I will thank you to bring me one of the egg-shells, as I should like to keep it as a memorial of the incident.

FREDERICK.

I will, Esther, in a minute; or I can do it going back.

MRS. F.

You had better get it now.

FREDERICK.

Oh no, Aunt; I will remember it.

MARY.

I, too, have found something—such a pretty robin's cushion.

MRS. F.

The bedeguar, as it is sometimes called, the work of one of the gall insects (*Cynips rosæ*), which pierces the brier, in order to deposit its eggs; the sap flowing from the part that has been pricked forms this excrescence, which is of the same nature as the gall nuts of the oak.

The gall nut of commerce (*Diplolepis gallæ tinctoriæ*) comes from the Levant.

HENRIETTA.

Frederick, when you climbed into the oak, you should have looked for some mistletoe.

MRS. F.

He would have had but little chance of finding it, for it is rarely, if ever, found upon the oak, but generally upon the hawthorn and the apple-tree. Indeed, this circumstance, combined with others, has led De Candolle to think that our mistletoe (*Viscum album*) is not the plant of the Druids. He says, that he has travelled all over France, and all the neighbouring countries, and has seen the mistletoe growing on every kind of tree\*, excepting upon the oak; while, on the contrary, he has found, in the environs of Parma, *Loranthus Europæus* growing spontaneously upon every species of indigenous oak; and this plant so clearly resembles the mistletoe in appearance, that it has received the same common appellation, and may easily be mistaken for it. If the mistletoe had existed upon the oak at the time of the Druids, there is no reason why we should not still find it so growing in France; but if the mistletoe of

\* Even upon the fir. Mr. Arundell, in his travels in Asia Minor, observed the mistletoe upon the willow.

the Druids was the *Loranthus*, we can easily conceive that it may have been destroyed in those provinces where the Druidical worship was in full force, and that it now only exists in those, where the plant has not been exterminated by frequent cutting.\*

The party had now reached the farm, where they found two men busily employed in burning charcoal.

MRS. F.

This is an unusual season of the year for this operation, which is generally performed in the spring. While I speak to the bailiff, you can amuse yourselves in learning the process by which charcoal is made.

The young people speedily questioned the charcoal burner, who explained to them how he arranged the billets of wood round a centre, in a kind of conical form, and then covered them with sand, in order to prevent the admission of more atmospheric air than sufficed to keep the fire alive. They saw him carefully cover in every little aperture by which he perceived smoke escaping; he told them the time the wood took in charring, which varied, according to its quality, age, &c., from one to three days, during which time he was obliged to watch

\* De Candolle, *Propriétés des Végétaux*.



it day and night; and having heard the whole operation fully explained, the young people rejoined Mrs. Fortescue, who was now ready to return home.

ESTHER.

Seeing the charcoal, reminds me of the expedient used in the American ships for preserving ice.

HENRIETTA.

What is that?

ESTHER.

A double frame-work or case is made of boards, and in the space between them, charcoal is rammed down as closely as possible. Charcoal being an imperfect conductor of heat, the ice is thus preserved for a length of time.

MRS. F.

Sand, also, is so slow a conductor of heat, that the red-hot balls used at Gibraltar in repelling the attack of the Spaniards, were conveyed from the furnaces to the bastions, in wooden wheelbarrows, having only a layer of sand between them and the balls.

ESTHER.

Mamma, what is the derivation of the word charcoal?

MRS. F.

It is derived from an Anglo-Saxon verb, which means *turned, turned about, or turned backwards and forwards*. Thus charcoal is wood *turned* coal by the fire; churn, a vessel in which the milk is *turned about*; and charwoman, commonly written chairwoman, is one who does not abide in the house where she works, as a constant attendant, but *returns* home to her own place of abode, and *returns* again when required. To set a door or window *achar*, or as some write it *on char*, and as we term it *ajar*, is to put it neither quite open nor quite shut, but on the turn or *return* to either.\*

ESTHER.

Thank you, Mamma: I should like very much to learn Saxon.

MRS. F.

It were much to be desired that the study of Anglo-Saxon formed a branch of education, for it constitutes the basis of our language, of which a greater majority of words are Saxon than would be easily believed. Of the sixty-five words which compose the Lord's Prayer, there are only five that are not Saxon. Of eighty-one words

\* Diversions of Purley.

in the soliloquy of Hamlet, thirteen only are of Latin origin. Even in a passage of ninety words of Milton, whose diction is more learned than that of any other poet, there are only sixteen Latin words. In four verses of Genesis, which contain about a hundred and thirty words, there are no more than five Latin. The language of familiar intercourse, the terms of jest and pleasantry, the idioms, the proverbs, the particles — all these foundations of a language are more decisive proofs of the Saxon origin of ours, than even the great majority of Saxon words in writing, and the still greater majority in speaking.\*

#### ESTHER.

But there are a great number of Latin, Greek, and French words in our language.

#### MRS. F.

So there are, in the modern writers ; but look at Dryden and Addison, at the writers before the restoration, and you will see the difference. The prophecy of an old writer is come to pass, and “we are now forced to study Latin, in order to understand English.” The complaint, therefore, is not new, though the practice complained

\* Sir James Mackintosh.

of is becoming more frequent. "To speak as the common people speak, and to think as the wise think," was the advice of Aristotle; and where can we find more simple and more natural language than in our admirable translation of the Scriptures, which affords us a pure model of genuine English. The most effectual method of preserving our language from decay, and preventing a total disregard to the Saxon part of it, is to change our present mode of education.\* Let children be early taught the Saxon language, in order the better to enable them to understand their own; for they never can thoroughly arrive at the meaning of a word if they only seek for its derivation in the Latin or French, instead of tracing it to Saxon, its true and original root.

HENRIETTA.

Frederick, what is that you have in your hand?

FREDERICK.

Merely a piece of fern taken close to the root. You will see, when I cut it across, what an excellent figure it makes of an oak tree.

MARY.

So it does. I never saw it before. There

\* Sharp's Letters and Essays.

appear to be a great variety of ferns in the wood; what is this one, mamma?

MRS. F.

It is the common brake (*Pteris aquilina*), which contains so much potash that the ashes of the burnt root are made into balls, and used as a substitute for soap.\* Like many other of the ferns, it contains tannin, and is employed in dressing leather, &c.

ESTHER.

Is not one species of *Pteris* eatable?

MRS. F.

Yes; several of the ferns contain a considerable proportion of saccharine matter, gelatine and mucilage. The inhabitants of New Zealand feed upon the roots of *Pteris esculenta*, *Cyathea medullaris*, and *Polypodium dichotomum*, and in the East Indies the same part of *Diplazium esculentum* is used for food.† Nor must we omit to mention the Capillaire plant (*Adiantum pedatum*) used in the south of France to make the syrup so called, which is perfumed with orange flower.

ESTHER.

How very minute the seeds of the fern are.

\* Sprengel.

† Ibid.

MRS. F.

Yes: Shakspeare alludes to their being so uncommonly fine as to be almost invisible, when he says, "We have the receipt of fern-seed; we walk invisible." Fern-seeds were formerly gathered the night before Midsummer, and made use of for magical incantations.

ESTHER.

Aunt, what is the kind of tinder called *amadou* made from?

MRS. F.

From one of the numerous family of Fungi. *Boletus fomentarius* is the species most commonly used. Several of these Boleti are eaten on the Continent, under the name of *ceps* (*Boletus edulis*, *æreus*, &c.) They cut them in strips, and dry them, in which state they are sold in the market.

ESTHER.

But in France and Italy, they eat a great many species of Fungi which we do not venture to touch here.

MRS. F.

Yes, of the genus *Agaricus*, (to which the common mushroom (*A. campestris*) belongs,) they eat from five-and-twenty to thirty species;

of *Boletus* upwards of six; several *Amanita*; besides many of *Merulius*, *Clavaria*, *Helvella*, *Peziza*, &c.; but so strong is the poisonous nature of this tribe, and so difficult is it to recognise the species from mere description, that we cannot be too careful in eating them indiscriminately. In Paris, inspectors are appointed, who visit the markets, and examine every fungus which is brought there for sale.\* The Morel (*Morchella esculenta*), and Truffle (*Tuber cibarium*), I have not mentioned, because you must have often seen them, as they are both found in England; the latter, abundantly in Sussex, where little dogs are trained to discover them. The fungus which produces the dry-rot in timber is *Agaricus lachrymans*.

## FREDERICK.

Aunt, look at this strange looking kind of caterpillar, with a snail shell fastened to it.

## MRS. F.

I see, it is the larva of the glow-worm. The

\* The most esteemed species in France are the common mushroom, l'orange vraie (*Agaricus aurantiacus*); Orange blanche (*Agaricus ovoïdes*); the two Mousserons (*Agaricus mousseron*, and *pseudo mousseron*); the Chantarelle (*Merulius cantharellus*) — the Ceps (*Boletus esculentus*), and the Girole (*Clavaria coralloides*).

nature of its food was long a matter of doubt, until Mr. Rennie discovered that it will touch no animal except small snails. It thrusts its long head into the shell, and does not withdraw it until it has devoured its inhabitant.

FREDERICK,

But, look aunt, it has now dropped the shell, and is turning its tail over its back just like that animal which we call at school "the Devil's coach-horse."

MRS. F.

The animal to which you allude (*Goërius oleus*), as well as the earwig, is said to apply its forked tail in assisting to unfold its long and closely folded wings; but this is not the case with the glowworm, the tail of which is furnished with a most singular instrument, consisting of a double row of cartilaginous rays, disposed in two circles, like a little brush, and retractile like the horns of a snail, but acting by suction. The grub cannot well devour a snail without being covered with its slime, and accordingly, after every repast, it goes carefully over its head, neck, and sides, with this cleaning instrument, in order to free them from slime. This instrument is moreover furnished, in the inside, with a sort of pocket, of a funnel shape, into



which are collected all the dust, &c. which it brushes off, till the funnel can contain no more, when, by a movement of the animal, the pocket is emptied, and the pellet of dust carefully placed out of the way.\*

HENRIETTA.

This is most curious indeed.

ESTHER.

I have often seen the common house fly cleaning itself.

MRS. F.

Yes; it is furnished with a kind of comb on its legs, with which it performs the office. Did you ever see the serrated claw of the Goat-sucker? (*Caprimulgus Europæus*.)

HENRIETTA.

Never, aunt.

MRS. F.

Then I will show you a representation of it when we go home. This comb serves them to clear the plumage of their heads from the insects which infest them, and, indeed, most birds use their claws for similar purposes; and it is remarked, that those birds which cannot con-

\* Rennie, in Journal of Royal Institution, Oct. 1820.

veniently reach their heads, such as ducks, martins, &c., are those which suffer the most from vermin; and, indeed, we may remark, with regard to our domestic poultry, that when they run in a stony or gravelly yard, they wear away the points of their claws by scratching and digging, and are in consequence disabled from cleaning their feathers, which renders them less clean and healthy than fowls which run at large.

ESTHER.

I suppose the same kind of cleaning is performed by the spider and the ant.

MRS. F.

I believe so. We also continually see cows and horses cleaning each other's necks and heads, which the individual cannot reach itself with its tongue; and, in the same way, caged birds will often assist each other in the same operation.

ESTHER.

The cat also cleans itself and its kittens, not only with its claws, but with its tongue, which is just like a currycomb.

MARY.

Yes. In the Library of Entertaining Know-

ledge \* there is a magnified representation of the tongue of a lion, and I suppose it is the same in all the feline species.

HENRIETTA.

But, all this time, we are forgetting our glow-worm, which I hope has not run away; for I intend taking it home, and putting it in a box with some snails, that we may watch it clean itself with its little brush.

MRS. F.

And you shall have my microscope, that you may examine it the more closely.

HENRIETTA.

Thank you, aunt; that will be very interesting.

FREDERICK.

Here is the glowworm, Mary: I will carry it for you, and you can take the little snails.

MRS. F.

I think that I had better take charge of it, for you, Frederick, have Esther's egg-shells to carry.

\* *Menageries*, vol. i. p. 179.

FREDERICK.

Oh, aunt, I had quite forgotten them.

MRS. F.

Just what I anticipated, when you said that you would take them *presently*. Another instance, my dear Frederick, of the inconvenience of a habit of procrastination—so often do we seriously annoy ourselves and others, by deferring until another time that which could just as well be done at the present.

FREDERICK.

Aunt, I will run back and fetch them now.

MRS. F.

Do so; but strive, by all means, to correct yourself of this pernicious habit, for you will soon carry it into the more important concerns of life, when it may prove of the most dangerous consequences.

FREDERICK.

But, aunt, I should never put off any thing of real consequence.

MRS. F.

So you think; but habits once formed are not so easily shaken off, and the same procrastinat-

ing disposition which led you to leave the eggshells this morning, would cause you to defer higher and more serious concerns. Beware then, above all things, of acquiring bad habits; they are of the utmost ease to acquire—of the utmost difficulty to break; for, as Johnson truly observes, “minutest, but strongest of all chains, is the chain of habit.”

## CHAPTER XVII.

PEARL OYSTER. — ENGLISH PEARLS. — AGE OF OYSTER. — GREEK OYSTER. — OYSTERS OF LAKE FUSARO. — PILGRIM'S SCALLOP. — VENUS MERCENARIA. — PHOLAS. — SOLEN. — TELLINA. — CARDIUM. — COWRIE, DIFFERENT SPECIES. — COLOURING MATTER OF SHELLS. — HELIX JANTHINA. — BULIMUS. — PERIWINKLE. — STROMBUS GIGAS. — CAMEO. — NAUTILUS. — PORCELLANEOUS AND MOTHER-O'-PEARL SHELLS. — TEMPLE OF SERAPIS. — TEREDO. — SPONGE FISHERY.

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“ Lo ! these are but a little portion of His wonders. Every shell is like an open book ; every painted sea-weed has a lesson written in its leaves. God is in every place ; he speaks in every sound we hear ; He is seen in all that our eyes behold.”

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FREDERICK.

ESTHER, I have been looking over your collection of shells, and I wish you would come with me, and tell me some things which I want to know.

ESTHER.

With pleasure.

HENRIETTA.

Then, in the first place, which is the oyster that produces the pearl ?

ESTHER.

It is this (*Mytilus margaritiferus*). The

pearls from Ceylon are, I believe, considered the best. The fisheries are commonly rented by one individual, who is allowed to employ a hundred and fifty boats for thirty days. The 20th of February is the day of *rendezvous*; the banks cover a space of thirty miles by twenty-four; and six thousand people are employed. The greatest depths produce the finest pearls; and a diver will collect from one to four thousand oysters a day.

HENRIETTA.

In what part of the shell is the pearl?

ESTHER.

The finest are situated in the fleshy part of the hinge. Pearl appears to be a formation forced upon the animal by some annoying substance in its shell, which it covers with mother-o'-pearl, as the bees invest intrusive wasps or snails with wax, to fix them and prevent them from putrifying.

HENRIETTA.

But pearls are sometimes found in England.

ESTHER.

Yes; but they are not produced by the same animal, but by the *Mya margaritifera*. Cæsar, on his return from Britain, offered up in the tem-

ple of Venus, a corslet of British pearls. The river Conway was celebrated for its pearls, and a large one was taken in this river, and presented by Sir Richard Wynn, the Chamberlain, to Catherine, consort of Charles II., and is said still to adorn the British crown.

HENRIETTA.

This is the common oyster (*Ostrea edulis*).

ESTHER.

Yes it is. Of the purpose to which the oyster shell was applied by the Athenians, I need hardly remind you: but do you know, Henrietta, how to distinguish an old from a young oyster?

HENRIETTA.

No.

ESTHER.

Its age is seen by the distance of the circles of laminæ of the convex valve, or under shell of the oyster: this lower valve often forms a beak of considerable length as the animal increases in age. An oyster is not fit for table until it is a year and a half old.

HENRIETTA.

But what are the green oysters?

ESTHER.

The green oysters which we see at Paris are,



I believe, chiefly from Rochfort, and it is supposed that the marine plants upon which they feed, the growth of which is favoured by the tranquillity of the water in the oyster banks or pits, stain them of this hue. The most celebrated French oyster pits are at Ostend; the English at Milton and Colchester; and the Romans used to send to Sandwich for their oysters, as they did to Minturnæ for their shrimps, and to Alexandria for their prawns.

HENRIETTA.

What epicures!

ESTHER.

I have heard Mamma describe the oyster beds in the lake of Fusaro.

HENRIETTA.

Where is that?

ESTHER.

It is near Naples, not far from Cuma; and, according to the ingenious theory of a learned Italian, it is the Acherusian shore where Æneas found Charon and his boat. This lake communicates with the sea, and is now one vast oyster bed, which entirely supplies Naples with oysters. It is the property of the king, who lets it out on leases of six years, for seven

thousand ducats (about £1400). The lake is shallow, and the oysters are distinctly seen at the bottom; a quantity of canes are placed in the water, and the oysters which adhere to them are considered the best, and are reserved exclusively for the king. In the same lake, Mamma saw a quantity of grey mullet (which the Italians call *cefoli*). They are enclosed in a reed fence, and the spearing of these poor imprisoned fish, is a regal sport. Wild boars, too, for the king's hunting, she saw in a copse of juniper and alaternus adjoining; and so tame are the creatures, that they ran up to the men, who held out a sieve of corn to feed them, as quietly as if they had been common pigs. But here, Henrietta, is the scallop-shell of the pilgrims (*Pecten maximus*); or, as it is called in Spain and Portugal, the shell of St. James, because that apostle is always represented with a scallop-shell in his hat, and the pilgrims to the shrine of St. James of Compostella, in Galicia, wear these scallops upon their cloak and hat. But the scallop has always been the pilgrims' ensign in their pilgrimages to holy places, and was of such a distinguishing character that Pope Alexander IV., by a bull, prohibited giving the use of them except to pilgrims who were truly noble. They are of very frequent occurrence in heraldry. You recollect Parnell's Hermit:—

"He quits his cell ; the pilgrim's staff he bore,  
And fixed the scallop in his hat before."

HENRIETTA.

And what are these pretty shells ?

ESTHER.

This drawer contains the genus *Venus*, which, in calm weather, may be seen sailing upon the surface of the water, using one of their valves as a boat, and the other as a sail. These shells are more numerous, and more varied in warm climates ; but there are two species which we find upon our own shores : one of them (*Venus mercenaria*) is cut into cylindrical beads, some white and some black, by the North American Indians, of which they form their wampum, or treaty belts \*, which are the symbols of friendship with them. They also use these shells for money, and the women cover their dancing shoes with them, so as to produce a tinkling noise.

HENRIETTA.

Here is the razor shell (*Solen*), which Frederick and I have often picked up by the sea side.

ESTHER.

It is. These animals burrow in the sand of

\* There is a detailed description of the wampum in the notes to Gertrude of Wyoming.

the sea shore, and bury themselves in a vertical position, sometimes two feet below the surface. This is a stone-boring animal (*Pholas*), which you may often have seen in the rocks.

HENRIETTA.

Indeed we have; for we were never able to get one out perfect, they are so wedged in.

ESTHER.

Yes; these animals pierce wood and stone, or bury themselves in the sand. The shell, as you know, is very fragile; but the animals seldom leave the hole which they have bored. They are sought as an object of food.

HENRIETTA.

Cannot the common cockle (*Cardium*) also bury itself?

ESTHER.

It can. "This faculty of being able to sink, when alarmed, with considerable rapidity, and being being able to rise again to the surface of a mass of sand heaped upon them, are the means of defence given to these shells to guard them from the violence of the breakers of our coasts. The hurricane may expend its fury in vain, and may sweep away even the upper part of the banks of sand, or may roll pebbles

over them ; but, gifted with this means of retreat and protection, these testacea are enabled to remain below secure and uninjured."

HENRIETTA.

And here is a little shell which I have often picked up.

ESTHER.

It is a *Tellina*, of which several species are found on our coast. I have heard Mamma often speak of a place near Broadstairs, called Shellness, where these shells had accumulated in such abundance that they might be carried away by sacks full ; but I have since heard that, from a change in the currents, or some other cause, the shells have entirely disappeared from the place. There is also a spot not far from Shellness, called Pegwell Bay, which is celebrated for the number of cockles (*Cardium*) which are found there. Are you aware that the common cockle (*C. edule*) can leap? and so indeed can the pecten.

HENRIETTA.

No; I never heard of it before.

ESTHER.

They are enabled to do so by means of their expansile foot, a structure which is common to a

great majority of the mollusca, the only instance, I believe, in nature, of a unipede, or one-legged organization. It serves both as a leg and as a hand. By means of it, some species spin a byssus\*; while others use it as an auger; others as a trowel; others as their organ of locomotion.

HENRIETTA.

Here is the drawer with the cowries (*Cypræa*). How beautiful they are! the only plain-looking one among them is our little English species (*Cypræa stolidæ*).

ESTHER.

Yes; it is but an humble type of its more brilliant congeners of the tropics; for in shells the intensity of colouring decreases as their locality approaches the poles, in the same manner that vegetation is influenced by its proximity to the tropics. The less a plant is exposed to the sun the paler its colours, the fainter its smell, the weaker its flavour. Odoriferous herbs are found in the greatest perfection in those countries where the sun-light is strongest, such as sweet herbs in Barbary and Palestine, and tobacco in Persia; and the peach, the vine, and the melon no where acquire such a flavour as under

\* See Chap. XI.

the brilliant sun of Cashmere, Persia, Italy, and Spain.\*

HENRIETTA.

Is not this the money cowrie (*Cypræa moneta*), the current money of Bengal, Siam, and Africa?

ESTHER.

It is. These shells are picked up by the negro women of the Indian islands about the full of the moon, when these animals are said to quit their retreats under the sea, at some distance from the shore, and traverse the rocks. *Cypræa aurantia* is worn in the Friendly Islands as a mark of the highest rank, and the African women make fringes of cowries to ornament their dresses.†

HENRIETTA.

The colours of some of these species are beautiful, and the regularity of their spots is most wonderful.

ESTHER.

The skin is full of pores; these contain the colouring fluid, which penetrates the calcareous substance before it is hardened, and forms its diversified tints. These pores are arranged over the skin of mollusca with the same un-

\* Lindley.

† Mrs. Lee, in her interesting "Stories of Strange Lands."

deviating regularity as the spots of the leopard or the stripes of the tiger, and as the liquor exudes and stains the shell, the uniformity of the pattern is, in consequence, in the order in which the pores are placed in the mantle.

HENRIETTA.

Here are all the whelks (*Buccinum*).

ESTHER.

The horn of the tritons is represented as one of these shells. Here is the beautiful *Haliotis*, or Venus' ear, the animal of which is eaten in some places. Look at this row of holes, or perforations, at its margin; each period of the shell's increase is marked by a new hole, and when a fresh one is opened, one towards the spire is closed, and in it the animal places its siphon. Seven to eight apertures appear to be the number which the animal keeps open at a time.

HENRIETTA.

This is the violet snail (*Helix Janthina*), which Aunt mentioned when talking about the shells which produce purple.\*

ESTHER.

Yes; this little fragile shell is found in almost

• Chap. XI.



every sea, both tropical and temperate. It dwells in the stormy ocean, sometimes a thousand miles from land, and offering no resistance to its fury, rides upon the waves in perfect safety. It is always found floating on the water, and probably never visits the bottom, or willingly approaches the shore. Supported by means of a small cluster of bubbles, composed of transparent vesicles, which it inflates with air at pleasure, this "common oceanic snail" floats upon the ocean, and not only disperses itself universally, but is also the means of disseminating other species, which either attach themselves or their eggs, to its shell.\* Mamma was telling us the other day, you remember, about the hybernation of the garden snail.† It would appear that other testaceous mollusca have the power of suspending animation, and retaining life, for a long period, without air or nourishment. Mr. Lyell relates that four specimens of a large species of *Bulimus* were brought to England from the straits of Magellan. They had been packed up in a box, and enveloped in cotton, two for a space of thirteen, one for seventeen, and a fourth for upwards of twenty months; but, on being exposed to the warmth of a fire, and provided

\* Lyell.

† Chap. XII.

with tepid water and leaves, they revived, and are now living in Mr. Loddidge's palm-house.

HENRIETTA.

This is the common periwinkle.

ESTHER.

It is. The Swedish peasants affirm that when these animals (*Turbo littoreus*) ascend the rocks, it is a sure sign of a storm, as prompted by instinct, they place themselves out of the reach of the dashing of the waves; and when they again descend upon the sand, it is a sign of a calm.

HENRIETTA.

And what is this large shell?

ESTHER.

It is the *Strombus gigas*, with which, I have understood, that the streets of Christianstadt and of Santa Cruz are paved. The beautiful shell cameos which are carved in Italy are sculptured from the *Strombus*; and the Italians procure the greater part of these shells from England, to which country they are brought from the South Seas.

HENRIETTA.

What is this shell, which looks so much like a ram's horn, only it is longer ?

ESTHER.

It is the *Nautilus spirula*. Those specimens which you have generally seen have probably been broken ; it being usually, from its great fragility, found imperfect. In its complete state it more resembles a crozier. This is the *Nautilus* (*N. pompilius*) of which Mamma has an ornament on the chimney-piece. It is found in abundance at Manilla, where the coloured part of the shell is removed, and raised white carved figures embossed upon it, and then two shells being fastened together, the one aperture turned downwards, the other upwards, it forms a graceful mother-o'-pearl cup or chalice.

HENRIETTA.

Is mother-o'-pearl the same composition as pearls ?

ESTHER.

Precisely ; there is no difference whatever. Shells have been divided into two classes : porcellaneous and mother-o'-pearl. The texture of the first is brittle, and resembling porcelain ; their surface is smooth, and they are often

beautifully variegated. They are composed of carbonate of lime, united to a very small portion of gelatine. Most of the univalve shells, such as whelks, limpets, cowries, &c., belong to this class.

HENRIETTA.

And the second class, or mother-o'-pearl?

ESTHER.

These are mostly bivalves; the oyster and mussel belong to it. In both classes, the hardening principle is carbonate of lime; but in the mother-o'-pearl it is united with albumen, but in larger quantities than the animal matter (gelatine) exists in the porcellaneous shells.\*

HENRIETTA.

But here, Esther, is a little mussel, which I suppose, by mistake, is placed among the univalves.

ESTHER.

True. I only received it the other day, and have not put it in its place. It is the species of mussel (*Mytilus lithophagus*) which is found at Pozzuoli, near Naples, in the temple of Serapis. The marble columns, at the height of

\* Brande's Chemistry.

twelve feet, are pierced by this perforating bivalve. The holes of these animals are pear-shaped, the external opening being minute, and gradually increasing downwards. These perforations are so considerable in depth and size that they manifest a long-continued abode of these animals in the columns, for as they grow older and increase in size, they bore a larger cavity, to correspond with the increasing magnitude of their shell. The granite columns of the same temple remain untouched.

HENRIETTA.

How is this accounted for?

ESTHER.

We cannot but infer that these columns must have been, for a long period, immersed in salt water, in an erect position, and, after remaining for so many years submerged, must have been upraised to the height of about twenty-three feet above the level of the sea; but by what internal convulsions these two changes must have been effected, is unknown. These effects occur in other instances in the Bay of Naples, and the whole country about, which is volcanic; and not far from Pozzuoli, is the Monte Nuovo, which was raised in 1538 by one of those internal convulsions; but you will find full accounts of the volcanic eruptions in the district about

Naples in Mr. Lyell's interesting work on geology. The mention of these stone-boring mussels brings us to the last drawer of the cabinet, which contains the *Tubicolæ*, among which the ship-borer (*Teredo navalis*) stands pre-eminent.

HENRIETTA.

Are not these the animals which do so much mischief to ships?

ESTHER.

They are. This animal is a native of the equatorial seas; but, by adhering to the bottom of ships, it has been transported to Holland, where, independent of the injury it causes among the ships, it has been most destructive to the piles of the dykes, by which it has more than once threatened that country with destruction. Commerce has naturalised this animal in England, and you must have often seen old ship timber covered with its perforations. As they grow larger they bury themselves deeper, and line their passage to the opening, with a kind of calcareous crust which exudes from them, and forms a sort of tubulous shell. Here is one of them. The pinna, chama, and other large shells I keep in this lower drawer; but Mamma has already given us a full account of most of them in one of our former conversations.\*

\* Chapter XI.

HENRIETTA.

This drawer is full of sponges.

ESTHER.

Yes; I am beginning a collection of sponges and corals, but as yet, it is very small.

HENRIETTA.

Where does the common sponge come from?

ESTHER.

The fishery for them is chiefly carried on in the Mediterranean, particularly in the Grecian Archipelago. The finer sponges come from Constantinople; the larger from the vicinity of Tunis and Algiers. The collecting of them is attended with danger, as they are fixed to the rocks at the depth of several fathoms, so that the sponge fishers must be excellent divers. The ancients, who did not cover their tables with linen cloths, used to clean them with sponges; as they did their hands, after their meals, with pieces of bread, which they afterwards threw to the dogs, as we learn from Homer, and which also clearly explains the force of the beautiful address of the woman of Canaan to our Saviour.\*

HENRIETTA.

Does not iodine exist in sponge?

\* Matthew, xv. 27.

ESTHER.

Yes, in considerable quantities. You recollect Mamma's allusion to it, when we were talking about seaweeds.\* But I hear Frederick calling us; so we must go and put on our bonnets, as it is just the hour for walking.

\* Chapter V.



## CHAPTER XVIII.

## THE WHALE FISHERY.

PORTUGUESE MAN OF WAR. — PALATE OF THE WHALE. — BILL OF THE DUCK. — SPERMACELE. — AMBERGRIS. — WHALE FISHERY. — VILLAGE OF SMERREBERG. — DECLINE OF THE WHALE FISHERY.

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“ There leviathan,  
 Hugest of living creatures, on the deep  
 Stretched like a promontory sleeps or swims,  
 And seems a moving land ; and at his gills  
 Draws in, and at his trunk spouts out, a sea.”  
 PARADISE LOST.

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## HENRIETTA.

AUNT, I was reading some voyages this morning, in which the author frequently mentions seeing the “ Portuguese man of war ” floating about on the surface of the ocean. What kind of animal is it ?

MRS. F.

It is one of the Zoophytes (*Physalia* genus),

and is rendered remarkable by the beautiful appearance which it presents when, in calm weather, it is seen swimming on the water suspended by a little oblong bladder filled with air, surmounted by a rising crest, which it employs as a sail. This inflated or bladder portion of the animal glows with the most delicate crimson tints, and floats upon the waves, whilst its long tentacula, of a deep purple colour, extend beneath, as snares to capture its prey.

HENRIETTA.

Where is it found?

MRS. F.

It inhabits the tropical seas, but during the summer months of the year, it is found in higher latitudes. Its colours are as evanescent as they are beautiful, and the bright crimson, green, and purple tints speedily lose their brilliancy when the animal is taken out of the water.

ESTHER.

I have understood that their appearance near the sea coast is considered as an indication of an approaching tempest.

MRS. F.

It is. But I have not yet mentioned its stinging properties. Mr. Bennett, the intelligent

traveller in New South Wales, tells us that it is amusing to see the eagerness with which persons endeavour to secure the gaudy prize; but they soon find, by experience, the rashness of the chase, for no sooner do they grasp the curious animal, than, encircling its long filiform appendages over the hands and fingers of its capturers, it inflicts such pungent pain, by means of an acrid fluid which it discharges from its tentacula, as to cause him to drop his prize.

ESTHER.

Is the sting, then, so very severe?

MRS. F.

Yes; but the intensity of the effects depend, of course, upon the size of the animal; and, after it has been long out of water, its power is diminished. Doubtless this property has been given to these little animals, by that Gracious Being whose "tender mercies are over all his works" — to serve both as an instrument of defence, and also as a means of procuring and benumbing their prey.

ESTHER.

The French call them *Galères*, and the old navigators "Guinea ships," probably from having first observed them on that coast.

MRS. F.

But the *Physalia* and the *Nautilus* are not the only mollusca which thus float upon the surface of the ocean. The little *Clio helicina*, which, with another of its species (*C. borealis*) form one of the aliments of the whale, sails in the northern seas, where it abounds.

HENRIETTA.

What is it, that the whale chiefly feeds upon?

MRS. F.

Upon small fish, worms, mollusca, and zoophytes.

FREDERICK.

But what small food for so enormous an animal !

MRS. F.

The construction of the mouth of the whale is admirably adapted for taking the food upon which it subsists. The upper jaw is, as you know, lined with the substance which we call whalebone, the edges of which are furnished with long hairs, or filaments. The whale swims with great velocity, and with its mouth wide open, by which means, an immense volume of water, and consequently quantities of the mollusca it contains, enter its mouth. The water is spouted up in the air by means of a narrow

opening pierced just above the head, while the food remains entangled in the hairy palate.

HENRIETTA.

What a beautiful arrangement ! I have heard people who saw the skeleton of the whale in London, observe how very small its swallow is for so large an animal ; but its food, consisting chiefly of these little mollusca, accounts for it.

MRS. F.

Yes, the clio, of which I was telling you, is hardly an inch long.

ESTHER.

Then these whalebones appear to answer much the same purpose to the whale as the serrated or toothed bill does to the duck.

FREDERICK.

What is that ?

ESTHER.

Ducks, and, I believe, most birds which live by suction, have the inside of their heads, towards the edge, thickly set with rows of short, strong, sharp-pointed prickles. These form a kind of filter ; the liquid substances into which the duck plunges her bill she draws, by the action of her lungs, through the narrow interstices which lie between these teeth, catching, as

the stream passes across her beak, whatever it may happen to bring along with it that proves agreeable to her choice, and easily dismissing the rest.\*

HENRIETTA.

Are there many whalebones in the mouth of a whale?

MRS. F.

The number varies from eight to nine hundred. I saw the skeleton of the whale to which Henrietta alludes, and that had eight hundred. This whale is supposed to have died of old age, for the cartilages of the fingers of its fins were quite ossified.

HENRIETTA.

Then how long is a whale supposed to live?

MRS. F.

A thousand years, according to the estimation of Buffon and Lacépède; and I have understood that Cuvier assigned from nine hundred to a thousand to the one in question. It is calculated that a pair of whales may live to count not less than 72,000,000,000 of their offspring.

FREDERICK.

What is the usual length of the whale?

\* Paley.

MRS. F.

The skeleton which I saw was ninety-five feet long; but travellers assert that they have met with whales of an incredible length.\* However, these accounts rest upon no authentic foundation, and recent observations † make it appear that the common whale (*Balæna mysticetus*) seldom exceeds seventy feet in length; the skeleton, therefore exhibited, is unusually large.

ESTHER.

But is the common or Greenland whale the largest of the genus?

MRS. F.

No; though long considered as such, it must yield the pre-eminence to the Rorqual (*Balæna boops*), which is found much larger, but is seldom taken, for it affords little oil, and is very ferocious, and dangerous to catch in consequence of the violence of its movements when attacked.

MARY.

How large the head of the whale is!

MRS. F.

Yes; its head occupies a third, or even half of the whole length of its body. It is, you

\* 300 feet.

† Scoresby.

know, in the head of one genus (*Physeter*) that spermaceti is found.

ESTHER.

And does not ambergris also come from the spermaceti whale?

MRS. F.

So it is supposed. This substance is usually found in opaque solid lumps, floating upon the sea, and appears to be a concretion formed in the Cachalot, or spermaceti whale. Ambergris is highly esteemed among the eastern nations, and sells for an enormous price.

ESTHER.

Of what size are the lumps generally?

MRS. F.

They have been met with of an immense size. In 1755 the French East India Company had a lump weighing 62 kilogrammes \* (about 132 lbs. 13 oz.), and the Dutch East India Company gave 11,000 rixdollars (about 2,383*l.* 6*s.* 8*d.*) for a piece weighing 91 kilogrammes (194 lbs. 14 oz.).

\* A kilogramme equals 2 lbs. 2 oz. 4 dra. 16 grs. English weight ; a rix dollar equals 4*s.* 4*d.* sterling.



ESTHER.

Is not the tail of the whale its most powerful weapon?

MRS. F.

It is; and indeed the whale has occasion for instruments of defence, for it has many enemies to encounter. Its skin is covered with barnacles (*Balanus* genus) and other parasites, which cause flocks of petrels (*Procellaria pelagica*) and other sea birds to perch upon its back, in order to devour them; but its three great enemies in the ocean are, the sword-fish (*Xiphias gladius*), the common shark (*Squalus carcharius*), and the grampus\* (*Delphinus gladiator* and *orca*). The sword-fish attacks the whale with its terrible weapon, and the grampus assail it in large troops, teasing it till it opens its mouth, and then they devour its tongue.

FREDERICK.

How very savage.

MRS. F.

The whale may be placed at the head of the animal kingdom, for to no other animal has Providence assigned so extensive a range. Time may be said to belong to it, as well as

\* Grampus, i. e. grand poisson.

space: its life is centuries; a thousand years the term of its existence\*. In swiftness of motion it surpasses even the trade winds; the latter only move at the rate of rather more than thirty-five feet a second; the whale, considerably faster. Supposing a whale were to take twelve hours rest a day, it would go round the globe at the equator in forty-seven days, and would be only twenty-four days going from pole to pole. And then its size—in which it bears the same proportion to the marine animals, as the elephant, the rhinoceros, and the hippopotamus, do to terrestrial. No animal is more powerful, none has such universal empire. †

ESTHER.

Would you have the kindness, Mamma, to give us some account of the whale fishery?

MRS. F.

With pleasure: I will give you an abstract of some notes which I have made upon the subject.

HENRIETTA.

Thank you, aunt.

MRS. F.

Though the Norwegians may have occa-

\* Lacépède.

† Lacépède, Buffon, and Dict. des Sciences Naturelles.

sionally captured the whale before any other European nation engaged in so perilous an enterprise, the Biscayans are certainly the first people who prosecuted the whale fishery as a regular commercial pursuit\*. They carried it on with great vigour and success during the twelfth, thirteenth, and fourteenth centuries; and whales' tongues at that time, were esteemed as an article of food, and the whalebone also brought a very large price.

ESTHER.

Why did this fishery cease?

MRS. F.

From the same cause that has occasioned the cessation of the whale fishery in many other places, namely, the want of fish. Whether the whales, from a sense of the danger to which they exposed themselves in coming southwards, no longer left the icy sea, or that the race had nearly been destroyed, we cannot determine, but it is certain that they gradually became less numerous in the Bay of Biscay; and, at length, ceased almost entirely to frequent that sea; and the fishermen being obliged to pursue their prey

\* The following is taken from M. Jonkaire's work on the Whale Fishery, as quoted in the 14th number of the Foreign Quarterly Review.

upon the banks of Newfoundland and the coasts of Iceland, the French fishery rapidly fell off. The voyages of the Dutch and English to the northern ocean, in order to discover a passage to India, though they failed in their main object, laid open the haunts of the whale. The companions of Barentz, who discovered Spitzbergen (in 1596), and of Hudson, who soon afterwards explored the same seas, represented to their countrymen the amazing number of whales with which they were crowded, and vessels were, in consequence, fitted out by each nation, the harpooners and crew being Biscayans. The Muscovy Company strove to monopolise the exclusive right of fishing in the seas round Spitzbergen, but the attempt was not tolerated. After several encounters between them and the Dutch, the conviction became general, that there was room enough for all parties in the northern seas, and, in order to avoid the chance of coming into collision again, they parcelled Spitzbergen and the adjacent ocean into districts, which they respectively assigned to the different European nations; and the Dutch soon acquired a decided superiority over all their competitors.

ESTHER.

Were the whales very plentiful?

MRS. F.

When the Europeans first began to prosecute the fishery on the west of Spitzbergen, whales were found every where in great numbers ; and, ignorant of the strength and stratagems of the formidable foe who assailed them, instead of betraying any symptoms of fear, the whales surrounded the ships and crowded all the bays. Their capture was, in consequence, a comparatively easy task, and many were killed which it was afterwards found necessary to abandon, from the ships being already full.

HENRIETTA.

I suppose that a vessel cannot contain many of these huge animals.

MRS. F.

In the returns of the fishery, I do not see that they ever bring home above eight or ten ; but whether a vessel would hold more I cannot say. However, at the period of which I am speaking, the whales being thus easily obtained, it was the practice to bring home only the oil and the whalebone, and to boil the blubber on shore in the north. Perhaps, nothing can give a more vivid idea of the extent and importance of the Dutch fishery in the middle of the seventeenth century, than the fact that they constructed a

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considerable village, the houses of which were all previously prepared in Holland, on the isle of Amsterdam, to which they gave the appropriate name of *Smeerenberg*.

ESTHER.

What is the derivation of the name?

MRS. F.

From *smeeren* to melt, and *berg*, a mountain. This village was the grand rendezvous of the Dutch whale ships, and was amply provided with boilers, tanks, and every sort of apparatus required for preparing the oil and the bone. Nor was this all: the whale fleets were attended by a number of provision ships, the cargoes of which were landed at Smeerenberg, which abounded, during the busy season, with well-furnished shops, good wines, &c., so that many of the conveniences and enjoyments of Amsterdam were found within about eleven degrees of the Pole.

ESTHER.

Yes: it is thought worthy of particular mention that the sailors and others were supplied with what a Dutchman regards as a great luxury—hot rolls for breakfast.

MRS. F.

Batavia and Smeerenberg were founded nearly at the same period, and it was for a considerable time doubted whether the latter was not the more important establishment of the two.

ESTHER.

What was the cause of its decline?

MRS. F.

The same which had destroyed the fishery of the Biscayans, namely, the absence of fish; whales gradually became less common and more difficult to catch. They retreated first to the open seas, and then to the great banks of ice on the eastern coast of Greenland. When the site of the fishery had thus been removed to a very great distance from Spitzbergen, it was found to be the more economical plan to send the blubber to Holland; Smeerenberg was in consequence totally deserted, and its position is now with difficulty discovered.

ESTHER.

Is the Dutch fishery at present of any extent?

MRS. F.

No; it was entirely ruined by the war, and all attempts to revive it have proved ineffectual;

the Dutch having, during the twenty years they were excluded from the sea, lost all that practical acquaintance with the details of the fishery, for which they had long been so famous, and which is so essential to its success.

ESTHER.

What other nations have entered into the whale fishery?

MRS. F.

Hamburgh, Altona, and other parts of the Elbe, carry it on with success; France, though it preceded, originally, all other nations in the trade, can hardly be said, for many years, to have had a share in it. The revolutionary war destroyed every vestige of the rising trade which Louis XVI. had endeavoured to foster. But the French Government offer now such immense bounties, that probably this branch of commerce may soon be revived among them.

ESTHER.

Who, then, are now the principal nations engaged in the trade?

MRS. F.

The English and the Americans. The occupation of Holland by the French, and the consequent hostilities in which she became involved



with this country, contributed more than any thing to the promotion of the British fishery. Our Government wisely offered to the fishers of Holland all the privileges enjoyed by the citizens of Great Britain, in the event of their settling among us. Many availed themselves of this encouragement, and bringing with them their capital, their industry, and their skill, prosecuted the fishery with the greatest success ; but the uncertainty of finding fish, and the risk of shipwrecks\*, have rendered the trade more of the nature of a speculation than of a regular, industrious pursuit.

## ESTHER.

Are not high bounties given to the whale ships ?

## MRS. F.

They were formerly. At one time †, as high as forty shillings a ton was given ; but, in 1824, these bounties were entirely abolished, and so great was the expense of keeping it up, that the whale fishery, as a source of national wealth, may now be considered as of little importance. Olive, rape, and linseed oil, and, for many purposes, even

\* In 1830, out of 87 ships that sailed to Davis's Straits, 18 were lost, 24 returned empty, and, of the remainder, not one had a full cargo.

† In 1749.

tallow, might be substituted for whale oil: if therefore, the fishery should decline even still more, its loss will probably be of little injury to the country. I have already mentioned that the whales are continually changing their haunts. The seas between Spitzbergen and Greenland are now abandoned, and the whales resort to Davis's Straits and Baffin's Bay, or to the sea on the coast of West Greenland. The various discoveries of our Northern navigators have made us acquainted with new and advantageous situations for the fishery; but it has undergone so many revolutions that it probably will again be necessary, in a few years, to follow the whale into new and more inaccessible haunts.

ESTHER.

Mamma, you have not alluded to the South Sea fishery.

MRS. F.

That was not prosecuted by the English until about the beginning of the American war, and it had previously been entered into by the Americans, who, for a lengthened period, have carried on the whale fishery with greater vigour and success than perhaps any other people. For half a century after its commencement, they found an ample supply of fish on their own shores, but the whales having abandoned them,

the American navigators entered with extraordinary zeal into the fisheries carried on in the Northern and Southern oceans, and no nation has ever carried this perilous mode of hardy industry to the extent to which it has been pursued by them.

## CHAPTER XIX.

## VEGETABLE PHYSIOLOGY.

WATCH OF FLORA. — ANTIPATHIES. — SMELL OF FLOWERS. — FLOWERS IN A ROOM. — LEAVES. — NECESSITY OF ALTERNATION OF LIGHT AND DARKNESS TO PLANTS. — ACIDITY OF FRUITS. — STARCH. — BRAZIL NUTS. — GENIPA. — CANNON-BALL TREE — CALABASH. — INFLAMMABLE PLANTS. — FRAXINELLA AND LYCOPodium. — DOODOE NUTS. — STORMY PETREL. — GUACHARO. — BOG FIR AND OAK. — PAPER FROM FEAT. — CÆSALPINIA FLUVIOSA. — CORYANTHES MACULATA. — SHAGREEN. — FRAGRANCE OF FLOWERS AFTER RAIN.

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“ What are flowers? perfect things  
Breathing in unwholesome air;  
Left to aid Hope's weary wings  
To soar above the clouds of care.”

FLORA'S OFFERING.

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MRS. F.

HERE is that table which I once promised to show you, giving the hours of expansion and closing of different flowers; or, as it is usually termed, a dial or watch of Flora. It may amuse you to verify its correctness by your own observations. But I should tell you that the hours given, are those which are recorded by Linnæus

for Upsal, and by De Candolle for Paris: they will therefore not exactly agree with the time here. Most of the flowers selected are common, either wild or in our gardens.

. ESTHER.

In what manner, then, does climate influence the opening and shutting of flowers?

MRS. F.

In proportion as the climate is colder, the expansion takes place the later. Thus, a plant which would open at six o'clock in the morning at Senegal would only expand at eight or nine in France, and at ten in Sweden; so that the expansion is calculated to be an hour later, for every ten degrees of latitude. Heat and light would therefore appear to be the chief agents in the opening and closing of flowers; but that they are not the only ones is evident, from some flowers opening only at night, and others being also subjected to atmospheric influence.

ESTHER.

Such as the little scarlet pimpernel (*Anagallis arvensis*), or the convolvuli, which close when it is going to rain.

MRS. F.

Or the Virginian sow thistle, which if it shuts

its flowers in the evening, we may be sure of a fine day; and if it opens them, we may prognosticate that the next morning will be rainy. Indeed, a number of flowers might be enumerated which offer parallel hygroscopic phenomena, and if they were collected, we might form a barometer, as well as a watch of Flora: here is the Table which I promised to send you:—

## WATCH OF FLORA.

Hour of Shutting at Upsal.		NAME OF THE PLANT.	H. Op. Upsal.
A. M.	P. M.		
		Convolvulus nil (the large annual species)	-
		Convolvulus sepium (common white bindweed)	-
9-10		Tragopogon pratense (goat's beard)	3-
	3	Matricaria suaveolens	-
		Leontodon tuberosum	4-
		Picris hieracioides	4-
10		Cichorium intybus (wild endive)	4-
		Other Cichoraceous plants	4-
10-12		Crepis tectorum	4-
10		Picridium tingitanum	4-
11-12		Sonchus oleraceus	5
	7	Papaver nudicaule	5
	7-8	Hemerocallis fulva	5
		Moist Cichoraceæ	-
		Momordica elaterium	-
		Lapsana communis, and many cichoraceous plants	5-
		Convolvulus tricolor	-
8-9		Leontodon taraxacum (dandelion)	5-
11		Crepis alpina	5-
10	1	Rhagadiolus edulis	5-

Hour of Shutting at Upsal		NAME OF THE PLANT.	Hour of Opening at	
A.M.	P. M.		Upsal.	Paria.
	4-5	<i>Hypochaeris maculata</i> - -	6 <sup>h</sup>	6 <sup>h</sup>
	5	<i>Hieracium umbellatum</i> - -	6	
		<i>Solanum</i> , several species - -		6
		<i>Convolvulus siculus</i> - -		6
		<i>Sonchus</i> (sow thistle), several species -	6-7	6-7
		<i>Hieracium</i> (hawkweed), several species	6-7	6-7
	2	<i>Hieracium murorum</i> - -	6-7	
	3-4	<i>Hieracium pilosella</i> - -	6-7	
	1-2	<i>Crepis rubra</i> - -	6-7	
10-12		<i>Sonchus arvensis</i> - -	6-7	
	4	<i>Alyssum utriculatum</i> - -	6-8	
	3	<i>Leontodon hastile</i> - -	7	
		<i>Sonchus lapponicus</i> - -	7	
		<i>Lactuca sativa</i> - -	7	7
	3-4	<i>Calendula pluvialis</i> (small Cape mary- gold) - -	7	7-8
	5	<i>Nymphaea alba</i> (white water -	7	7
		<i>Nuphar</i> (yellow ditto) - -	7	7
	3-4	<i>Anthericum ramosum</i> - -	7	
		<i>Camelina sativa</i> - -		7
		<i>Prenanthes muralis</i> - -		7
	2	<i>Mesembryanthemum barbatum</i> -	7-8	7-8
	3	<i>Mesembryanthemum linguiforme</i> -	7-8	
		<i>Campanula speculum</i> (Venus' looking- glass) - -		7-8
		<i>Cucumis anguria</i> (prickly cucumber)		7-8
	2	<i>Hieracium auricula</i> - -	8	
		<i>Anagallis arvensis</i> - -	8	8
	1	<i>Dianthus prolifer</i> - -	8	
		<i>Nolana prostrata</i> - -		8-9
	1	<i>Hieracium chondrilloides</i> - -	9	
12	3	<i>Calendula arvensis</i> - -	9	
	2-3	<i>Arenaria rubra</i> - -	9-10	
	3-4	<i>Mesembryanthemum crystallinum</i> (Ice- plant) - -	9-10	9-10
	3	<i>Mesembryanthemum nodiflorum</i> -	10-11	10-11
		<i>Portulaca sativa</i> (purslane) -		11
		<i>Ornithogalum umbellatum</i> (called on that account "Dame d'onze heures")		11

Hour of Shutting at Upsal		NAME OF THE PLANT.	Hour of Opening at Upsal, Paris	
A. M.	P. M.		P. M.	A. M.
		<i>Tigridia pavonia</i> -		11 <sup>h</sup>
		Most Ficoideous plants -		12
		<i>Scilla pomeridiana</i> -		P. M.
		<i>Mirabilis jalapa</i> (marvel of Peru) -	5 <sup>h</sup>	2
		<i>Pelargonium triste</i> -	6	6-7
		<i>Mesembryanthemum noctiflorum</i> -		7-8
		<i>Oenothera tetraptera</i> -		7-8
		<i>Oenothera suaveolens</i> -		7-8
	12	<i>Cereus grandiflorus</i> (night-blowing Cereus) -	9-10	7-8
		<i>Silene noctiflora</i> -	9-10	5-6
		<i>Convolvulus purpureus</i> -		10

## HENRIETTA.

Thank you, Aunt. I should like to copy this table, if you will allow me. But, talking of flowers, why is it that you told me not to carry the tuberoses up into my room ?

## MRS. F.

Because the scent is so powerful as to be insupportable to many persons of weak nerves. Indeed the spasmodic affections produced by the odours of flowers, are more common than is generally supposed, but vary, of course, according to the constitution of the individual.

## ESTHER.

Mary de Medicis could not bear the sight of a rose, even in painting ; and Cardinal de Guise



would faint away at the sight of the same flower.

MRS. F.

But these were natural antipathies, such as that of Boyle to a spider; for in these instances, the mere sight of the rose, without smelling it, appears to have been sufficient to disturb the tranquillity of the individual; but I am at present alluding to the effect of vegetable odours upon the senses. Few can bear the fragrance of the lilac or the jonquil, especially in a room; and even violets, the last flowers to be suspected, have, in many cases, proved deleterious; De Candolle says he has witnessed many ladies faint from carrying too many of them on their persons, or from having placed them too near them when asleep. It is asserted that people have died from being shut up in a room in which the oleander was in flower; hysterics have been brought on by the musk mallow; Saffron has been known to produce swooning, and the flowers of *Lobelia longiflora* have caused suffocation.\*

ESTHER.

And some trees are equally hurtful, the elder, the walnut, and the anagyris, bring on headache in persons who sleep beneath their shade;

• Lindley.

and the Manchineel tree is said to have proved fatal to travellers who have trusted to its shelter.

MRS. F.

I believe that the idea that plants vitiate the air of a room at night, because at that time they part with carbonic acid and inhale oxygen, is much exaggerated. If it is vitiated at all, it is by their powerful odours, which, as I have just shown you, act upon the nerves of many persons.\*

ESTHER.

But they give out carbonic acid at night, do they not?

MRS. F.

Yes; but a single human being will vitiate the air more than a hundred plants. However, the strong smell of flowers is sufficient reason for banishing them from a sleeping apartment. But it has been ascertained that the slight diminution of oxygen, and increase of carbonic acid, which takes place during the night, bears no considerable proportion to the degree in which the contrary effect is observable during the day; and therefore the immense quantity of vegetables which cover the globe are constantly increasing the quantities of atmospherical oxygen

\* Lindley.

which is diminishing by the breathing of animals, and so contribute to render again fit for inspiration, the air which has been vitiated. Thus, Providence provides a living check upon *malaria*, and has admirably ordained that one of the kingdoms of nature should render and maintain the world in such a state as to be habitable by the other.

ESTHER.

Leaves perform important functions to plants.

MRS. F.

Yes; they are at once the organs of respiration, digestion, and nutrition.

HENRIETTA.

Then why do gardeners so often take them off the fruit trees?

MRS. F.

From the greatest ignorance. If a branch be stripped of its leaves for a whole summer, it will either die or not increase in size perceptibly. Deprive a tree of its leaves, and the flowers lose their colour; and if it be before the fruit has commenced ripening, the fruit will fall off and not ripen; or if, in a more advanced stage, it will diminish its flavour considerably. This, therefore, is one of the numerous examples of the benefit which is daily accruing to horticulture from the knowledge of vegetable physiology.

ESTHER.

Do plants grow most by night, or by day?

MRS. F.

They grow chiefly by day, as appears from the few observations which have been made upon the subject. Wheat and barley were found to grow by day nearly twice as fast as by night; but the diurnal changes of day and night are as necessary to the well-being of plants as they are to that of animated beings. If plants were kept incessantly growing in light, they would be perpetually decomposing carbonic acid, and would, in consequence, become so stunted that there could be no such thing as a tree, as it is actually the case in the polar regions, where one long day and night comprise the year. If, on the other hand, they grow in constant darkness, their tissue becomes excessively lengthened and weak; no decomposition of carbonic acid takes place; none of the other parts acquire solidity and vigour; and, finally, they perish. But under the beautiful arrangement of Providence, plants which in the day become exhausted by the decomposition of carbonic acid, and by evaporation, repair their strength at night, by inhaling oxygen copiously, and so forming a new supply of carbonic acid,

by absorbing moisture from the earth and air, without losing any portion of it.\*

ESTHER.

I suppose that the reason that fruits are more acid in the morning than in the evening † is, that in the sun's rays, they decompose their carbonic acid, and part with their oxygen of which they do not gain a fresh supply until night.

MRS. F.

It is so. Botanists have also found that leaves which are acid in the morning, and will turn litmus paper ‡ red, produce no effect upon it by noon, and are then tasteless. Starch, again, in which carbon forms so large a proportion, and which, in the potato, cassada, corn, beans, peas, &c., contributes so largely to the nourishment of man, depends for its abundance essentially upon the presence of light. It also increases the saccharine matter in the sugar-cane, and completes the formation of oil in the seeds of oleaginous plants.

ESTHER.

Mr. Knight, the President of the Horticultural Society, has turned this known fact to great

\* Lindley.

† Ibid.

‡ See Chapter XI.

account in the cultivation of potatoes. He leaves wide intervals between his rows, and makes them lie from north to south, so as to expose as large a surface as possible to the light.\* Potatoes grown in orchards are watery, in consequence of the leaves and branches of the trees intercepting the light; the quantity of nutrition they contain being in direct proportion to the quantity of light which they receive.

MRS. F.

Starch is a common secretion among vegetables; besides the plants already alluded to, we find it in the tubers of the Jerusalem artichoke; in fleshy roots, as in the briony; in the centre of the stems, as in the sago palm; in the receptacles of plants, as in the artichokes; in the liber of some trees, as the pine and the birch; and in the rind of certain fruits, as the date, the bread-fruit, &c.

ESTHER.

Did you ever, Henrietta, see those triangular nuts in the shops which are called Brazil nuts?

HENRIETTA.

Yes, often, and have wondered what they were.

\* Hints on Vegetation, by Sir John Sinclair.

## ESTHER.

They are the fruit of a large tree, of from a hundred to a hundred and twenty feet in height, and with a trunk from two to three feet in diameter. It is called the Juvia or Almendron. Its botanical name is *Bertholletia excelsa*, and it belongs to the natural order of *Myrtaceæ*. It does not flower until its fifteenth year, and its leaves are two feet long. The seeds, which are sold in England and Portugal, under the name of Brazil nuts, form a principal article of commerce with the natives of the Esmeralda, the Orinoco, and the Amazon. There are generally from fifteen to two-and-twenty nuts enclosed in a shell or pericarp, which is less than fifty or sixty days in forming, and of which the woody part, nevertheless, is so hard, that though only half an inch in thickness, it is with difficulty that it can be sawn asunder.

## MRS. F.

It has been already observed by an eminent naturalist\*, that the wood of fruits generally attains a degree of hardness not to be met with in the wood of the trunk of trees;—but I interrupt you.

\* Richard.

## ESTHER.

This pericarp is spherical, and from twelve to thirteen inches in diameter. The weight of these fruits is so enormous, that one traveller asserts, that the natives dare not venture into the forests without covering their head and shoulders with a shield of very hard wood. De Humboldt says that these shields were not known on the Esmeralda, where he saw the trees, but that the natives spoke of the danger which they incurred when these fruits, which are of the size of a child's head, began to ripen, and fell from a height of fifty or sixty feet to the ground, when they make an enormous noise by their fall. The nuts detach themselves in time, and move freely within their shell, and the rattling noise they then make when dropping from the tree, excites the greediness of the Capucin monkies (*Simia chiropotes*), who are singularly fond of the Brazil nuts.\*

## MRS. F.

That is like the *Genipa*, the fruit of which in its fall, is said to crack upon the ground with the report of a pistol, and to give notice to the land crabs, who immediately hasten to the tree to seek a repast—one of those innumerable modes by

\* Humboldt. *Voyages*, t. viii.



which Providence attracts the animal to the food upon which it is destined to live, and gives, in endless variety, "the means proportioned to the end."

## ESTHER.

There is also the Cannon-ball tree, (*Couroupita Guianensis*) belonging to the same order as the Brazil nut, which grows in the dense forests of Cayenne, and the fruit makes a similar noise in falling, whence the tree derives, in some measure, its name. But it also has procured this appellation from the fallen pericarp, or fruit, which strew the ground, exhibiting the scar or hole by which they were attached to the stalk, and which so closely resemble the cannon shell, that one might easily, at first sight, imagine that a company of artillery had bivouacked in its shade.

## HENRIETTA.

Is the tree large?

## ESTHER.

It is from fifty to sixty feet high, and covered with a profusion of brilliant scarlet flowers, which are highly fragrant. The fruit are round, and from four to eight inches in diameter; when cut and ripe they diffuse a most intolerable odour, but, in a less mature state, the pulp is employed

to afford a refreshing drink in fevers. The shell is used in South America for the same purposes as the Calabash (*Crescentia cujete*).\*

MRS. F.

The shell of the Calabash sometimes constitutes the sole article of furniture of the Carib Indians. By ligatures applied to the fruit while it is still growing, it is made to assume a variety of forms, to adapt it to the various purposes for which they use it. They often carve, polish, and stain it, and their goblets, water cans, and even their kettles to boil water, are made from it; the hard, woody shell being so thin, and close-grained, as to stand fire several times before it is destroyed.

HENRIETTA.

Aunt, I heard the other day, that the flowers of the Nasturtium give out sparks in the evening.

MRS. F.

We are told by Linnæus that his daughter observed this phenomenon in the common Nasturtium (*Tropæolum majus*), but the Fraxinella (*Dictamnus Fraxinella*) is the most curious instance of this exhalation of inflammable vapour from plants. Its leaves and stem are covered

\* Hooker, in Botanical Magazine.

with little brown resinous glands, emitting a powerful balsamic odour. This plant, in warm weather, is surrounded by an inflammable atmosphere, formed by its own vapour, which will take fire when a light is applied to it, and produce a bright rapid flame, which does no injury to the plant. It has been ascertained, that this vapour is a volatile oil suspended in the atmosphere. The nthere is the club moss (*Lycopodium clavatum*), the minute volatile seeds of which are highly inflammable, like powdered sulphur, and are used in Germany for artificial lightning on the stage. When dispersed in the air, they take fire with a candle, and suddenly explode.\*

## ESTHER.

In Captain Beechey's Voyage, we are told that the inhabitants of Pitcairn's Island and some others, find an excellent substitute for candles in the *doodoe* or candle nuts.† These nuts are heart-shaped, and of about the size of a walnut. They are strung upon the fibres of a palm leaf, and thus form a torch, which gives a very good light; but the only inconvenience is that these nuts give out a considerable heat, and

\* Sir J. Smith.

† Beechey's voyage, vol. i., and Lord Byron's voyage to the South Sea Islands.

stack and fly about to the discomfiture of the persons who chance to be near them. The tree which produces them (*Aleurites triloba*) is large, bears a handsome blossom, and supplies ornaments for the ears and hair. It belongs to the order *Euphorbiaceæ*, and independent of the use which is made of its oily nuts, the inner bark yields a dark red dye, and the tree affords a gum with which the Otaheitans dress their cloth.

#### HENRIETTA.

But the most curious candle which I ever heard of is that used in the Ferroe Islands, where the inhabitants kill the stormy petrel (*Procellaria pelagica*) in great numbers; and the bird is so fat and oily that they only pass a wick through its body, and it serves the purpose of a lamp.

#### MRS. F.

So we are told, on the authority of Pennant; but I believe the bird which produces the greatest quantity of fat, is the Guacharo (*Steatornis caripensis*) of South America, which the Indians destroy in immense numbers for its fat, which they eat. This singular bird is the first example of a nocturnal bird among the Passerine class. It is of the size of a fowl, and inhabits one of the most spacious calcareous caverns known. It

only comes in at the fall of day, and makes its nest sixty feet from the ground. De Humboldt gives a most entertaining description of these birds, and of the periodical attacks of the Indians upon them, which takes place in the month of June.\*

ESTHER.

In Iceland, the peasants split the wood of the pine, which they find buried in their bogs, and use it for candles, it being generally the only light which they have.

ESTHER.

The oak is also found in great quantities in the bogs, is it not?

MRS. F.

Yes, the oak is generally dyed black from the iron which exists in the peat. Attempts have been made to convert the bog oak into furniture, it being so hard and black as to equal ebony in the fine polish which it takes, and in colour; but, after a short time, it warps and cracks so much as to spoil its appearance, and, unfortunately, to prevent its adoption as a substitute for ebony. These trees are found immersed in the bogs at different depths, sometimes twenty feet below the surface.

\* Humboldt, Voyage, tom. iii.

ESTHER.

I read the other day, that experiments have been lately made upon preparing paper from turf or peat, which, if the attempt should prove successful, will be the source of great advantage to Ireland.

MRS. F.

Let us hear what you have read. Various are the materials which have been tried as a substitute for linen. Paper has been made from straw; Chinese paper from the outer coats of a species of *Amaryllis*; French white paper from old rag and oakum; and English letter-paper has been made containing a large quantity of plaster of Paris: chopped hair, spent bark, wool combings, wood shavings, &c., have been tried, but without success; and lately the fresh-water *Conferveæ* have been had in requisition, but they were found too fragile to endure bleaching.

ESTHER.

Certain kinds of turf were then tried; for all linen paper being composed of vegetable fibre, it appeared probable that peat, in a certain state, would be well fitted to the purpose. The bogs consist of various strata, varying in density and other properties, in proportion to the depth. The surface is usually covered with mosses, heaths, &c., in a living state; the stratum im-

mediately beneath, usually consists of a tough, fibrous, light spongy mass, composed of the same kind of plants as those growing above, but in the first stage of decomposition; the vegetable fibre being unaltered, while the other organic substances of the plants are chemically changed. From this material, the paper is made. The turf is macerated in a machine resembling a paper-mill, until its parts are fully separated without injuring the fibre; and a stream of water running through the machine, carries off the earthy and other extraneous matter; the strong woody stems of heath, &c., are then expelled, and the mass dried in an hydraulic press. By next exposing it to the agency of several chemical preparations, the fibres are brought into the state of a pure, white, fine pulp, fitted to be converted into paper, either alone or in combination with linen rags. The pigment called "Vandyke Brown" is also procured from the residue of this manufacture, as well as a species of artificial camphor. About eighteen pounds of the pulp may be procured from one hundred weight of crude turf; and pasteboard is made from it by a most simple process. The fibres of the turf lie nearly parallel; and the turf is therefore cut in pieces of about two feet square by three inches thick: when dry, it is placed in a close cast-iron vessel, the air exhausted, and a mix-

ture of dissolved glue and molasses, at a boiling heat, poured over it, which fills up all the pores. The turf is then subjected to the pressure of an hydraulic press, by which the superfluous fluid is expressed, and its substance reduced to about three eighths of an inch in thickness. It is, moreover, worthy of remark, that the kind of turf suited to the above purpose, is precisely that which is rejected for fuel.\*

MRS. F.

Thank you, Esther. Should further experiments establish the promise held out by this account, the bogs, which are already the magazines of the richest manure, and of an inexhaustible store of fuel, may yet become in Ireland another of the most fertile resources for enriching the country. But it is almost time for our walk.

ESTHER.

Before we leave off, Mamma, I wish to ask you about the tree which drops water.

MRS. F.

You allude to the *Cæsalpinia pluviosa*, a Bra-

\* The above account is from the report of a paper read by Mr. Mallet at the meeting of the British Association, as given in the Dublin Penny Journal for November, 1835.



zilian tree, which is said to produce a shower of drops of water resembling rain, which are discharged from the points of the leaves of the plant: but one of the newest vegetable curiosities among the water-holding plants is described by Dr. Lindley as a native of the woods of Demerara. The plant is called *Coryanthes maculata*, and is of the natural order of Orchidææ. It is not uncommon in the woods of Demerara, where it is found hanging from the branches of trees, and suspending in the air the singular lips of its flowers, like fairy buckets, as if for the use of the birds and insects that inhabit its foliage.

ESTHER.

How does it hold the water ?

MRS. F.

The lip of the flower is furnished near its base with a yellow cup, over which hang two horns, constantly distilling water into it, and in such abundance as to fill it several times. This cup communicates, by a narrow channel, formed of the inflated margin of the lip, with the upper end of the latter; and this also is a capacious vessel, very much like an old helmet, into which the honey which the cup cannot contain may run over.

ESTHER.

What an interesting plant it must be! I should like very much to see it.

MRS. F.

We must now prepare for our walk.

HENRIETTA.

I see, Aunt, that there has been a shower since we have been talking. Perhaps it will be over by the time we have put away our work.

MRS. F.

Who has seen my spectacle case?

FREDERICK.

Here it is, Aunt: what is it made of?

MRS. F.

Of shagreen.

FREDERICK.

And what is that? it looks like fish-skin.

MRS. F.

No; real shagreen is the skin of the wild ass, prepared in a peculiar manner.

HENRIETTA.

Will you have the kindness to tell us how it is done, and where it is made?

MRS. F.

The principal manufactories of it are at Astrachan, and in Persia. All skins of horses or asses prepared so as to appear grained, are called by the Persians *sogri*, by the Turks *sagri*. The skins are soaked in pure water for several days ; then stretched upon boards, and the epidermis or outer skin scraped off. The operation is then repeated, and the skin again extended upon wood. The upper side is besprinkled with the black, smooth, hard seeds of the *Chenopodium album*.

ESTHER.

That is a common plant in waste ground, as well as in the garden. The people about here call it " fat hen," and give it to their pigs to eat.

MRS. F.

That these seeds may make a deep impression upon the skins, a piece of felt is spread over them, and the seeds trodden down with the feet ; and thus a strong indenture is made in the soft skin, which is then left to dry, and the seeds are shaken off. After this process is completed, the skin is once more scraped, and again put into water. As the seeds occasion indentation in the surface of the skin, the intermediate spaces, by the operation of scraping and smoothing, lose some of their projecting substance ; but the parts

which have been depressed or indented by the seeds, and which, consequently, have lost none of their substance, now swell up above the scraped parts, and thus form the grain of the shagreen.\*

ESTHER.

Then the part which is pressed down by the seeds, being unscraped, is thicker than the other, and therefore rises above it.

MRS. F.

Exactly so. Henrietta, open the window, and see if it still rains.

ESTHER.

No, it does not, Mamma. How delightful the air is after the shower! How sweet the flowers smell!

MRS. F.

Yes; a heavy shower in summer brings out the perfume of all the flowers. An hour ago, when the sun had heated and dried the air, we should have found the flowers comparatively scentless; but the dampness of the air brings out their perfume, and seems to produce a total change in the odoriferous organs of plants. I can smell the musk mimulus (*Mimulus moscha-*

\* London Encyclopædia, art. SHAGREEN.

tu) most powerfully, although it is in the further bed of the garden.

## ESTHER.

And the same difference is, I am sure, most perceptible between a morning and a noonday walk in autumn. "When the sun has dried the air, and the plants are ill able to bear his action, in consequence of the dryness of the source from which they draw their means of compensating for his evaporation, the garden is scentless\* ;" but walk in it before the dew has dispersed, when every herb, tree, plant and flower is "redolent with sweets,"—when the air is impregnated with balsamic odours, and all nature appears to be offering up incense in morning sacrifice, in gratitude for the refreshment and rest of the night with its cooling vapours ;—go into a garden then, and we must feel the truth of the beautiful words of the poet :—

— " Was ev'ry falt'ring tongue of man,  
Almighty Father ! silent in thy praise,  
Thy works themselves would raise a gen'ral voice,  
E'en in the depth of solitary woods,  
By human foot untrod, proclaim thy power,  
And to the choir celestial Thee resound,  
Th' eternal cause, support and end of all !"

THOMSON.

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\* Lindley.

## CHAPTER XX.

## SEPULCHRES OF THE NATIONS OF ITALY.

TOMBS AT PÆSTUM. — BURNING AND BURYING THE DEAD. —  
HERCULES. — ROMAN TOMBS. — STRUCTURE OF THE SEPUL-  
CHRES OF CAMPANIA. — CINERARY URNS. — CONTENTS OF  
THE SEPULCHRES. — LACHRYMATORIES. — TOILET OF THE  
ROMAN LADIES. — ITALO-GREEK VASES. — MANNER OF  
PAINTING THEM. — ETRUSCAN VASES. — ANCIENT ETRURIA.  
— CITIES OF THE ETRUSCAN LEAGUE. — TOMBS AT TAR-  
QUINII. — CLUSIUM. — ETRUSCAN SCARABÆI AND MONEY.

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“ What now of all that Rome or Athens grac’d ?  
In war or conquest — wealth or splendour plac’d ;  
Their gods — their godlike heroes — princes, powers,  
Imperial triumphs, and time-braving towers ?  
What now of all that social life refin’d,  
Subdu’d — enslav’d — or civiliz’d mankind ?  
What now remains ? ” —

MOORE.

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## ESTHER.

HENRIETTA, come and look at this model of  
a Greek tomb, at Pæstum, which Mrs. Clifford  
has lent to me to show you.

## HENRIETTA.

How curious it is ! I see that the walls are

ainted, and there is some armour and a quantity of vases strewed about it, and a skeleton. I thought that the ancients burnt their dead.

ESTHER.

Not always ; the Greeks and Romans sometimes adopted one mode, sometimes the other. Interment was the more ancient practice ; and the bodies of infants, and of those who were killed by lightning, were forbidden by law to be burned.

MRS. F.

Hercules is said to have been the first who introduced the custom of burning the dead. Having promised to take back Argæus, who was killed in the Trojan war, to his father Lycymnius (the uncle of Hercules), and being unable to restore him alive, Hercules burnt his body, and carried back his ashes, in order not to fail in his engagement to the father.

HENRIETTA.

Then there was no regular rule observed with regard to the interment of the dead ?

ESTHER.

No ; it would appear, that both means being equally accessible, the survivors were free either

to burn or bury the bodies of their departed relatives as they preferred.

MRS. F.

To judge from the results of the researches in Magna Græcia, it seems that the proportion of bodies interred to those burned was, among the Italo-Greeks, as one to ten ; whereas among the Romans, it was totally the reverse.

ESTHER.

The Greeks used to conceal their tombs, and placed them on the north side of their town; the Romans, on the contrary, liked to exhibit their sepulchres.

MRS. F.

As Madame de Stael observes, " Loin que l'aspect des tombeaux décourageât les vivans, on croyait inspirer une émulation nouvelle en plaçant ces tombeaux sur les routes publiques, afin que, retraçant aux jeunes gens le souvenir des hommes illustres, ils invitassent silencieusement à les imiter." This observation is made when visiting the Appian way, that street of sepulchres, where numberless tombs and sarcophagi attest, at each step, the monumental grandeur of the Romans. But their private tombs were of a different description ; they were placed



under ground, and consisted of tiers of small niches, each of which held one or several urns. Here the master and the slave were buried together, and all that lived in one family, shared the same cemetery.

ESTHER.

This kind of family vault was called a columbarium, from its resemblance to the holes in which pigeons build their nests.

MRS. F.

It was so : but let us now proceed to the tomb of which you have the model, and which is one of the sepulchres of the Greeks of Campania.

ESTHER.

Are they all of the same construction ?

MRS. F.

No ; the tombs in Magna Græcia vary in their form and structure. Some are dug in the tufa, or rock ; others are built of stone or brick, forming a room or chamber. Sometimes the bodies were burned, and the ashes placed in a cinerary urn, and buried in the ground, without any protection except, perhaps, a square stone over it. A porphyry urn was so discovered at Cuma, and to this mode of interment we are

indebted for one of the finest painted vases in the Museum at Naples. It is called, from the subject depicted upon it, "The last Night of Troy." For its form, design, preservation, and the fineness of its varnish, it stands in the first class of its kind. It was found in 1797, at Nola, so celebrated for its vases, and was enclosed in a vase of coarse earthenware, in order to protect it. It was full of human ashes, and buried merely in the ground.

ESTHER.

Had the ancients any particular form for their cinerary urns?

MRS. F.

It appears not; for they are found with two or three handles: and even simple plates have been discovered, containing ashes and burnt bones.\*

HENRIETTA.

But, from this model, it seems that the tombs are full of curiosities.

MRS. F.

Their contents vary, of course, according to the condition of the individual interred. Those

\* De Jorio.

of the rich are full of objects of interest, and present a curious insight into the domestic life of the ancients. Some of those which are of large dimensions, have the sides of the walls of the interior covered with white stucco, upon which are painted figures in colours and gilding; and some are ornamented with bas-reliefs. In the centre of the apartment is laid the body, with an incense bottle on the breast, or, as they are termed, lachrymatories.

HENRIETTA.

Why were they so called?

MRS. F.

Not from holding the tears of the relatives, as is falsely imagined; but they were so denominated by the ancients, because, from the form of the neck of the bottle, the perfume fell from it drop by drop, as tears flow from the eye. Sometimes there are several of these incense bottles round the body, made either of glass, alabaster, or earthenware. It appears that these bottles were carried by the relatives to the grave, when the perfumes which they contained were poured over the body, and the bottles deposited in the tomb.

HENRIETTA.

What else does the sepulchre contain?

MRS. F.

On a patera, or dish, is placed the sop for Cerberus ; and numbers of vases are arranged about the tomb, either standing on the floor, or attached with bronze nails to the walls. Men were buried with their arms, armour, dice, styles and tablets for writing, &c., according to their profession. Mirrors, rouge, combs, ivory and bone pins for the hair, ornaments, &c., are found in the tombs of the women; and children were interred with their dolls, marbles, and playthings.

HENRIETTA.

Of what were the mirrors made ?

MRS. F.

Of bronze: but Pliny mentions mirrors of green glass ; and Nero had an emerald mirror. The Roman ladies always carried their mirrors about with them ; and it appears that they were acquainted with all the false additions of the modern toilet, and wore false hair, false teeth, false eyebrows and eyelashes, white paint and rouge ; and sometimes they dyed their hair.

HENRIETTA.

What are the other contents of the sepulchre ?

MRS. F.

It would be endless to enumerate all the various

substances which they contain: amber, gold, silver, iron, copper, mother-o'-pearl, glass and rock crystal are of the number, besides several kinds of food, such as eggs, shell-fish, crustacea, wine, and the bones of birds.

HENRIETTA.

But were these beautiful vases only painted to place in the tombs?

MRS. F.

From what we can learn, it appears that they were frequently used in sacrifices and other religious ceremonies; they were given as prizes to the victors in the games, and were also kept for ornament, or appropriated to domestic purposes. The piety of the relatives led them, perhaps, to decorate the tombs of their departed friends with the vases which they most valued during their lives, or which were most associated with their memory.

ESTHER.

In what state are these sepulchres generally found?

MRS. F.

Some have no earth whatever in them, except the small quantity which the ancients sprinkled over the body, at the time of interment. Other

tombs are quite filled up with mould, either from the roof having given way, or from the excavations of the Romans, who sought the Italo-Greek tombs with great avidity, for the painted vases which they contain, and which, even at that period, were valued for their beauty and antiquity. In the time of Julius Cæsar, some Greek sepulchres were found at Capua when that city became a Roman colony; and, after ransacking them of their contents, the earth was thrown into the tombs, which also were sometimes used by the Romans as places of sepulchre for themselves.

ESTHER.

How were the ancient vases painted?

MRS. F.

The Italo-Greek vases are all of fine red pottery varnished; and the figures upon them are either painted in black upon the natural red ground of the vase; or the vase is grounded in black, and the figures left red (the draperies and features being traced out in black). The first description of vase is the most esteemed; and, as far as can be inferred from minute examination, it was executed in this manner:—After the vase had been baked once, the figures were lightly shaded out with a brush, dipped in a thin diluted

mixture of the black varnish. The artists appear, like Raphael and the Italian painters, to have sketched the simple figure, and afterwards to have added the draperies. The figures were next filled up with black, the contours corrected, and finished off with fine sharp lines of the dark black varnish; and the drapery, features, and different details which occur inside the black figure, were picked out, either by means of a sharp point which removed the black, or by applying white or red colours over it. The vase was then again sent to the oven, which completed the process.

ESTHER.

And how were the others executed?

MRS. F.

Those of the second class, which had the figures left red, and the vase grounded in black, appear to have been executed by different persons; the inferior parts being left to inferior artists to perform. The first class, on the contrary, seem to have been entirely finished by the master; whereas in the second, a variety of hands may be traced in the drawing; and the reverse of the vase appears generally to have been done by a less expert artist. We may fairly suppose, that in this manufacture, which

must have been pursued upon an extensive scale, the labour of the vases was divided among several persons, as would be the case with us. But to return to the vase: the figures were shaded out, as before, with a light tint of the black, or sometimes with a hard point, probably of metal. That the latter plan was sometimes used, is evident, from the lines which we see indented on some of the vases; but, probably, it was less generally adopted, from it being necessary to trace, in this manner, while the clay remained in its unburnt state, and the more fit to receive an impression; and, consequently, the vase, from being handled when in this tender state, was more exposed to injury and accident. The other mode was therefore preferred. The outline being sketched, it was probably next carried to a superior artist, who corrected the proportions, traced the features, &c., and outlined the whole with a very thick line of the black varnish.

HENRIETTA.

Why did he use it so thick?

MRS. F.

Probably to afford an easier outline to those who had the task of grounding the vase in black, and who, from carelessness or inexperience,



would (as is often to be seen in the vases) run the colour upon the figure, which was left in red, and upon which it was indelible. The thicker, therefore, the outline, the less chance of it being passed; and in some of the vases, it feels quite raised to the touch. The figures and superior part of the drawing being finished, the vase was next passed to another artist, to draw the reverse, and to paint the borders and the minor ornaments; and another probably put in the white, or other tints which were added to the vase.

HENRIETTA.

Were there any other colours used?

MRS. F.

Yes, besides the black; white, blue, light yellow, bright red, and a very dingy red, were sometimes employed. The decorations being finished upon one vase, nothing remained but the black ground, which being added, the vase was sent to the oven for its second baking, when it was completed. There is a vase in the museum of Naples which was found unfinished, and from that, and a careful examination of the others in the museum, the above conclusions are formed.\*

\* See the works of the Canonico de Jorio.

## ESTHER.

The modern imitations are easily detected by immersing the vase in spirits of wine, or sometimes merely by washing it with water, when the colours speedily disappear; whereas the ancient, being burnt in, are unhurt by this test.

## MRS. F.

Their weight, and the colour of the clay, are likewise means by which they may be readily distinguished, as also by the fineness of the varnish. When the vases are taken from the ground, they are generally covered with a thick white calcareous crust. This is removed by means of muriatic acid, which does not in the least effect the black varnish, so durable is the composition of which it is made. When we consider the rapidity with which they must have been executed, from the quick absorption of the colours by the clay, and the impossibility of removing the black lines on the red ground, we cannot but admire the more, the boldness and correctness of the drawing, and the elegance and grace of the composition. So widely were these vases diffused, that a Roman station being discovered near the Hague, many cups and vases of fine red pottery were to be seen among the ruins (in 1823), with the names of the Greek

artists who had manufactured them, distinctly stamped on the under side.\*

HENRIETTA.

But, Aunt, you call these vases Italo-Greek ; I thought that they had been Etruscan ?

MRS. F.

That the Etruscans fabricated vases, as well as the Greeks, is acknowledged ; but they may generally be distinguished from each other. The subject painted is usually the type of their origin. The varnish of the Etruscan vase is less brilliant ; the earth of a different colour ; the ornaments less graceful ; and the style of the figure, which is drawn in black upon the clay, has all the characters assigned to the Etruscan drawing. The want of proportions ; the stiff attitude ; the constrained position of the arms ; the ill-drawn eyes ; the long beards and hair of the men ; the winged genii ; the arms, and other attributes, generally enable the antiquary easily to distinguish them, and are sufficient indications of their origin.

HENRIETTA.

Aunt, but I do not know any thing about the Etruscans.

\* Gell's Topography of Rome.

MRS. F.

Nor is much known respecting them. The history of Italy, before the dominion of the Romans, is involved in obscurity; and whether the Etruscans be originally of Lydian or of Egyptian origin, is quite uncertain. So little is known of this eminently distinguished people, that circumstances seem to confirm the idea that the Romans destroyed every thing relating to the records of ancient Etruria. Thus, although the Etruscans seem to have arrived at the highest points of civilisation, and even of luxury, at an early period, whilst Rome had, as yet, no existence, and to have been distinguished, in a variety of respects, far beyond the people of surrounding nations, we are almost wholly ignorant of their history, and even their origin is involved in the greatest obscurity. The Emperor Claudius is said to have written twenty books of Etruscan history, which are unfortunately lost.

ESTHER.

Were the Etruscan dominions extensive?

MRS. F.

There is proof that almost all Italy was, at one time, under the power of Etruria; and Capua was built by an Etruscan colony; but their dominion in the south of Italy must have been of

short duration, as no traces of their language are to be found there. Their territories extended at one time, in the north, from Turin to the Adige, and they were only separated at one part of their confines from Rome, by the Tiber.\*

## ESTHER.

Which were the twelve cities of the Etruscan league?

## MRS. F.

The enumeration of these cities vary. In one list we find the cities of

Cære — Cervetere,  
Tarquinii — Turchina,  
Populonia,  
Volaterræ — Volterra,  
Arretium — Arrezzo,  
Perusia — Perugia,  
Clusium — Chiusi,  
Rusellæ,  
Cortona — Cortona,  
Vetulonium,  
Cossa, and  
Fæsulæ.

Veii, Vulsinii and Capena, which belonged to an earlier catalogue, had probably fallen when

\* See Sir W. Gell's *Topography of Rome* for the above details.

this enumeration was made, and their places were therefore supplied by the admission of other towns. At Cære, which is about thirty miles from Rome, many curious relics have been found; among others, figures of black earthenware, about four inches high, of an Etruscan divinity, represented with four wings, and tearing open its robe. The etymology of the word *cæremonia* may be referred to the circumstance of the priests of Cære having initiated the Romans into the mysteries of Etruria.

Tarquinius is about thirteen miles north of Civita Vecchia, and was, next to Veii and Clusium, one of the first cities of Etruria, and is now celebrated for the tombs which have been found there; but we will not mention individually each city of the Etruscan league, most of which afford interesting remains of Etruscan art. The Etruscans entombed their great men in tumuli, and excavations in the rock; many of these are to be seen; and, of the former, the tumuli of Tarquinius are the most celebrated, and their contents are eminently useful in affording information relative to the dress, games, and customs of this lost nation. The tombs contained vases, arms, gold ornaments, &c.: and the rock in which they are excavated is so favourable to the preservation of the body, when the air was excluded, that a person who looked through the first hole made by the workmen,

saw a body stretched on a bench, with its garments in perfect preservation, but from the admission of the air, while he was yet looking, it sunk down, leaving only a picture of dust, of all that had once been there.

**ESTHER.**

How large are these chambers?

**MRS. F.**

About eighteen feet long by seventeen feet wide, and nine high. The ceiling of one, opened in 1828, was white, ornamented with red stars. A frieze generally runs round the chambers, on which are painted the games which had been celebrated at the funeral of the deceased. The figures in these tombs are generally well executed, though not with the elegance of Grecian art. It is singular that the men are all coloured red, like the Egyptian paintings in the tombs of the Theban kings. Their eyes are very long, their hair is black and bushy, their limbs lank and slender, and the facial line projecting remarkably, so that the outline of their face resembles strongly that of the Negro, or of the Æthiopian figures of Egyptian paintings. They wear round their ancles rings as ornaments, and armlets on their arms. Shawls of oriental patterns are also worn by both men and women.

ESTHER.

What are the games depicted on the friezes?

MRS. F.

Wrestling, leaping, running, boxing, chariot-races, horse-races, cudgel-playing, and riding at the ring. The tombs at Viterbo are ornamented in the same manner, and are cut out of the rock; this place and Tarquinii presenting a series of tombs which can only be compared, in number and extent, with those in the valley of the kings, in Egypt. When I was in the Val di Chiana, in the vicinity of Chiusi, (the ancient Clusium,) we visited an Etruscan tomb\*, which had been discovered when sinking a well, the workmen having come to the stones of the roof, by which they entered into the sepulchre, which is built of uncemented blocks of travertine; the doors consist of two large stones, with circular projections at the top and bottom, which fit into corresponding holes in the framework of the door, and thus form the hinges. The sepulchre originally contained eight sarcophagi, all of men. The subjects of the bas reliefs upon them are hippocampi, Medusas, a Bacchante on a leopard, &c. The stone of which the sarcophagi are made is very sonorous.

\* Sepolcrete della Paccianese, discovered in 1820-21.



ESTHER.

Did you visit Clusium?

MRS. F.

We did so; and although there are no remains of the celebrated mausoleum of Porsenna, there is much to interest in Etruscan antiquities. Vases of every description, from the black pottery to the highly finished painted vases; but that which interested me the most was the different collections of Etruscan scarabei, which are found in the fields when ploughed, or after heavy rains. They are mostly on cornelian, and are perforated in their longest diameter. From some having been found mounted as rings, it would appear that they were destined for this use; probably as signets. The Etruscans were celebrated for their engraving upon stones both of cameos and intaglios, as they were also for their works in terra cotta, in brass, gold, &c. At Athens, the metal cups and vases of Etruscan workmanship were highly prized.

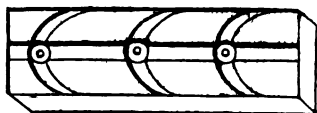
HENRIETTA.

What was their money?

MRS. F.

No Etruscan coin in silver is known, and very few circular coins are found; but Plutarch says

that the most ancient money was in rods of brass or iron, cut off at certain lengths, and marked VI, XII, &c. A number of these broken and figured bars have been discovered; from their different lengths, it is evident that the balls or knobs, whether placed on the stem, or between the branches, indicated the value of the bar. Several



had six balls or fruits; many had three: some of the larger pieces have also double knobs. This seems a most simple and natural, and not an inelegant manner of producing the effect of coinage, and the mystery is at once explained of the early Etruscan money, and the existence of so many pieces of stamped metal as have been found from time to time in the country. The more we enter into the study of the remains of Etruria the more interesting it becomes, and time and further investigation may probably throw more light upon its history, and enable the learned to decide upon the oft-disputed point, of whether it is to Egypt that we are to trace the first origin of Etruscan arts and civilization.

## CONCLUSION.

---

~~Such is the bliss of souls serene,  
When they have sworn, and steadfast mean,  
Counting the cost, in all to espy  
Their God, in all themselves deny.~~

" O could we learn that sacrifice,  
What lights would all around us rise !  
How would our hearts with wisdom talk,  
Along Life's dullest, dreariest walk !

" We need not bid for cloister'd cell,  
Our neighbour and our work, farewell,  
Nor strive to wind ourselves too high,  
For sinful man beneath the sky.

" The trivial round, the common task,  
Would furnish all we ought to ask ;  
Room to deny ourselves ; a road  
To bring us daily nearer God."

*Keele's Christian Year.*

---

THE time was now approaching when Henrietta and Frederick were to return to school. The little circle viewed the separation with sorrow,

but none felt it so acutely as Henrietta, who loved Mrs. Fortescue and her cousins, as if they had been her mother and her sisters.

The evening before their departure, when she wished her aunt "good night," Henrietta's overcharged heart could contain itself no longer, and she burst into tears.

Mrs. Fortescue kissed her affectionately.

"My dear Henrietta," she said, "I am sure that we all feel the parting from you very much, but we will look forward, God willing, to meeting another year, should your father and mother still leave you under my care. The opportunities which we have lately enjoyed, have not, I trust, been left unimproved by any of us, but have proved to us all the source of instruction and advantage. My great aim in our conversations, has been early to accustom you, to place all instruction upon a religious basis, to render all knowledge such as will make you wise unto salvation, and, above all things, to recognise the God of nature in all his works, to see

'Him first, Him last, Him midst, and without end.'

"If God be robbed of his glory, how can we expect a blessing upon our labours? and, as we are all called upon to walk by faith, and not by sight, it is essential to lead you to see God in all things, and to trace him who is himself invisible,

in those outward manifestations of his power and goodness, which are within the reach of our finite observation.\*

“Such has been the object of all my instructions; such, I trust, under God’s blessing, may be its result.

“Then may I, indeed, look forward to the highest reward which an anxious parent can hope for (for as a parent I feel towards you all), that of being permitted to witness the success of my humble labours, by seeing you happy in this world, and of being allowed, through the merits of our Saviour, to say, when we all meet in the presence of our Maker, — ‘Of them whom thou gavest me have I lost none.’ ‘Behold I and the children whom the Lord hath given me.’”

\* Mayo.

THE END.

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— “ Out of the old feldis, as men saieth,  
Comith all this newe corne fro yere to yere,  
And out of olde bokis, in gode faieth,  
Comith all this newe science that men lere.”

**CHAUCER.**

---

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“ Au pied des collines  
Où Rome sort du sein de ses propres ruines,  
L'œil voit dans ce chaos, confusément épars,  
D'antiques monumens, de modernes remparts,  
Des théâtres croulants, dont les frontons superbes  
Dorment dans la poussière ou rampent sous les herbes,  
Les palais des héros par les ronces couverts,  
Les dieux couchés au seuil de leurs temples déserts,  
L'obélisque éternel ombrageant la chaumière,  
La colonne portant une image étrangère,  
L'herbe dans les forum, les fleurs dans les tombeaux,  
Et ces vieux panthéons peuplés de dieux nouveaux ;  
Tandis que, s'élevant de distance en distance,  
Un faible bruit de vic interrompt ce silence.”

---

LAMARTINE.

MIDSUMMER was now arrived, and Henrietta  
and Frederick again received a summons to

pass the holidays with their excellent aunt, to whom they had written many letters, expressing their gratitude for the instruction which she had endeavoured to convey to them, and assuring her how much they looked forward to the pleasure of making her another visit.

A few days after their arrival, our little party returned to their customary pursuits, and entered with Mrs. Fortescue, upon a new series of conversations, which we now offer for the information and amusement of our young readers.

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MRS. F.

I have been reading this morning, a memoir written by M. Mongez, a member of the French Academy, in which he gives a curious account of the animals which, at different times, have been exhibited at Rome in the public games. The memoir is interesting, not only from the wonderful picture which it presents of the luxury of the Romans, but also as showing us what opportunities were possessed by ancient naturalists, of observing the animals of foreign countries.

We find that the first elephants which had been seen at Rome, were exhibited B. C. 272,

and consisted of four that had been taken from Pyrrhus, by Curius Dentatus.

FREDERICK.

We all know that Pyrrhus had elephants, from the anecdote related of his interview with Fabricius.

MRS. F.

The use of elephants in war, is very ancient among the Asiatic nations. There is the marvellous account given by historians\* of Semiramis and her false elephants; and, in his battles against Porus and Darius, Alexander the Great had to encounter these formidable animals.

ESTHER.

And, from the book of Maccabees†, in which we read the history of the self-devotion of Eleazer, we know that Antiochus employed elephants against the Jews.

MRS. F.

In the year B. C. 252, Metellus sent to Rome 142 elephants which he had taken from the Carthaginians, at the siege of Palermo.

ESTHER.

How were they conveyed?

\* Diodorus Siculus.

† Book i. chap. vi. v. 43.

MRS. F.

By means of an immense raft, constructed of planks, covered with earth, and fixed upon empty barrels. By this contrivance, the whole number of elephants were conveyed across the Straits to Reggio, and after having been exhibited at Rome, they were killed with arrows in the Circus, as the state would not give them away, and did not know how to employ them.

ESTHER.

Hannibal had a great many elephants.

MRS. F.

Yes: he used them very extensively in his armies; and at the battles of Trebia and Cannæ, they proved of the greatest use. Asdrubal employed them ineffectually at the battle of Metaurus, and by frightening the elephants which broke the wing of Hannibal's army, Scipio gained the battle of Zama.

ESTHER.

The Italians still believe that all the fossil bones of elephants, found in Italy, belonged to those of Hannibal's army.

MRS. F.

An idea which the immense number of bones that are found, would alone be sufficient

to refute. In no part of Europe are the bones of fossil elephants so plentiful as in the Upper Valdarno, where the peasants used to employ them as stones, in the construction of their houses. Hannibal entered Italy with thirty elephants: at the battle of Trebia he had eight only left, of which number he lost seven, in attempting to cross the Apennines, so that when he entered the Upper Valdarno, he had only the one remaining upon which he himself rode.

ESTHER.

Are the bones of fossil elephants common?

MRS. F.

Yes; they are found in America, in Northern Europe, France, Great Britain, &c., and it is worthy of remark, that although so widely diffused in latitudes where the animal no longer exists, yet they have not, hitherto, been found in those regions which the elephant now inhabits. Trunks of palms, and other tropical trees, have been found in parts of France, and England, so that at the time tropical animals lived in these countries, the soil produced the vegetation of a tropical climate. Hence, geologists infer that these animals were natives of the countries in which we find their remains, and were not driven there by accidental circumstances: and

hence also we infer a warmer climate in those countries, than that which exists at present.

ESTHER. .

How much larger the ear of the African elephant is, than that of the Asiatic.

MRS. F.

Yes; the enormous ear of the African elephant which covers the shoulder, is one of the most striking distinctions to an ignorant observer; but there are many other characteristic differences between the two races\*, of which it appears the Romans were well aware.†

FREDERICK.

Which were preferred for fighting?

MRS. F.

In the battle of Magnesia, B. C. 187, the African elephants of Scipio were opposed to those of Asia, in the army of Antiochus, and and were found greatly inferior both in strength and size. The Romans, however, gained the

\* The principal distinctions are these. —

*Asiatic.* — Head oblong; forehead, concave; crowns of the grinders, concave; waved jaws; nails on the hind feet, four.

*African.* — Head, round; forehead, convex; crowns of the grinders, in lozenge-shaped figures; nails on the hind feet, three.

† Cuvier.

day, and Antiochus was required to deliver up his elephants to his conquerors, in like manner as the Carthaginians had previously been compelled to resign theirs after the battle of Zama, and Jugurtha his\*, at the close of the Numidian war. But we are digressing from our original subject — the account of the Roman games.

At the games B. C. 169†, sixty-three panthers and forty-three bears were exhibited; the same number of panthers, with an equal quantity of lions, were also provided for those of Sylla (B. C. 93.).

## HENRIETTA.

Then lions and panthers must have been common at Rome.

## MRS. F.

Yes; they used to be exhibited by hundreds. I do not know if the Romans ever saw the white Polar bear, but one was taken to Egypt, in the time of the Ptolemies, and the bear is to be seen in the paintings of the Egyptian tombs, with a procession of people who appear to be inhabitants of a cold climate, as they are dressed in close sleeves, and bring long gloves as a tribute to the Egyptian monarch. ‡

\* B. C. 108.

† Of Scipio Nasica and Publius Lentulus.

‡ Wilkinson's Thebes, p. 153.

The hippopotamus was first brought to Rome B. C. 58\*, and it was accompanied by five crocodiles and 150 panthers. Although the Romans have not well described the hippopotamus in their writings, yet exact representations of this animal exist in their medals, and in the celebrated statue of the Nile.

Pompey, at the dedication of his theatre, had, among other animals†, the lynx, the caracal, and the one-horned rhinoceros. Cæsar exhibited (B. C. 46) a giraffe and 400 lions.

But all this lavish profusion was little compared with the extravagance of the emperors. Augustus is extolled for having caused 3500 animals to be slaughtered before the Roman people. At the dedication of the temple of Marcellus, 600 panthers perished, a royal tiger was exhibited for the first time, an enormous serpent was shown to the people in the Forum, and water was introduced into the Flaminian circus, for the purpose of showing thirty-six crocodiles which were afterwards put to death. Upon the triumph of Augustus over Cleopatra, a rhinoceros and a hippopotamus were exhibited and killed.

Animals were also trained to perform extra-

\* By Emilius Scaurus.

† He had also 600 lions and 410 panthers.



ordinary feats: in a chariot race of Caligula\*, the carriages were drawn by camels, and Galba amused the Romans with rope-dancing elephants; while, under Nero, one of these animals, mounted by a Roman knight, was seen descending an inclined rope from the roof of the theatre to the ground.

ESTHER.

But where were the elephants educated to perform such extraordinary feats?

MRS. F.

In Italy. They were young elephants which had been born at Rome; Pliny and Ælian give an account of them, from which it appears, that the Romans kept droves of elephants, in a park, in the territory of Laurentum, where they were disciplined for the Roman games.† These elephants delighted in the notes of the flute, and, at one exhibition of their docility, twelve of them marched into the theatre, in harmonious measure, scattering flowers over the pavement, and, during the intervals of the dance, beating time to the music. After this display, they feasted in public; six elephants dressed in female, and six in male attire, lay

\* A. D. 58.

† Gell's *Topography of Rome*.

down upon the splendid tricliniums or couches which had been prepared for them : at a given signal, they extended their trunks and ate with the greatest moderation and discretion, the delicacies placed before them in vessels of gold and silver, upon tables of ivory and cedar. They took the golden goblets which were presented to them, and drank with similar decorum. Pliny also mentions their dancing upon a rope, and states that four elephants carried upon a litter one of their companions, feigning illness, and they maintained their balance with the greatest precision.

FREDERICK.

Then they must have been much more accomplished than any of the clever elephants ever exhibited in England.

MRS. F.

We must now again return to the Roman games. The emperor Claudius exhibited four royal tigers, then a great rarity ; they were probably the four represented in a beautiful mosaic which was found in a garden at Rome, near the arch of Galienus.\*

Titus caused 9000 animals, wild and domestic, to be slaughtered at the dedication of his baths and Martial devotes a whole book to the cele-

\* Cuvier.

bration of the exhibition of Domitian, (A. D. 90,) when wild bulls were harnessed to cars, and the Romans then beheld, for the first time, the two-horned rhinoceros, which is represented upon the medals of this emperor. Modern Europe has not yet seen a living specimen of this animal, but the Romans knew both species, and have described them very exactly.\*

Trajan caused 11,000 animals, wild and domestic, to be massacred at the games which he gave after the Parthian war (A. D. 105.).

Antoninus exhibited elephants, crocodiles, hippopotami, tigers, &c., and, for the first time, hyænas. We find a striped hyæna perfectly represented in a mosaic preserved in the Vatican.

These spectacles were revolting to the feelings of Marcus Aurelius, but they were renewed with increased ardour by Commodus, who gave public games for fourteen days, during which, he himself killed a tiger, an hippopotamus, an elephant, a giraffe, and some ostriches.

FREDERICK.

Whose exhibition came next?

MRS. F.

That of Philip, in A.D. 248., of the animals collected for the purpose by Gordian III. In his list,

\* Cuvier.

B 6

we find, ten giraffes, — a circumstance worthy of observation, as it is curious that so many of these animals should have been exhibited alive to the Romans, when the moderns, in the 15th century, had only seen one specimen.

ESTHER.

Where did that come from?

MRS. F.

It was sent from the Sultan of Egypt to Lorenzo de' Medici, and is represented in the fresco paintings of Lorenzo's villa of Poggio Cajano, near Florence.

The triumph of Probus was magnificent. He planted a forest in the circus, in which ranged a thousand ostriches, the same number of stags, wild boars, and fallow deer, a hundred lions and lionesses, three hundred bears, chamois, mouflons, leopards, &c.

Constantine prohibited these sanguinary games, but we still read under Theodosius, of numerous animals destined for the circus.

Honorius caused tigers to be harnessed to cars, and Justinian exhibited lions and panthers.

But the difficulty of procuring animals for this work of destruction, and the declining resources of the Roman state, added perhaps to

some feeling of humanity, contributed to put an end to these barbarous practices which were probably introduced, in the first instance, to keep alive the ferocity of a people educated for war and the destruction of their fellow creatures.

## ESTHER.

Thank you, mamma, this account is most curious and interesting.

## MRS. F.

And it leads us from a view of the myriads of wild beasts slaughtered to gratify the cruelty of the Roman populace, to the still more frightful destruction of human beings for their inhuman sport.

The Coliseum, which, under Titus, was the arena for the degrading combats of the gladiators, became, under Dioclesian, the scene of the martyrdom of the Christians. And yet, without the influence of Christianity, these majestic ruins would have been dispersed or levelled with the dust. Plundered of its lead and iron by the barbarians, Goths and Vandals, and robbed even of its stones, by Roman princes, of the Barberini and Farnese families; the Coliseum was the public stone quarry of Rome, until Benedict XIV. placed it under the safeguard of religion, and by consecrating a spot hallowed by

the blood of Christian martyrs, preserved by the sanctifying influence of the cross, the very building in which Christianity suffered its early persecution. "And what a contrast the present application of this building, connected with holy feelings and exalted hopes, is to that of the ancient one, when it was used for exhibiting to the Roman people the destruction of men by wild beasts, or of men, more savage than wild beasts, by each other." \*

ESTHER.

In what a ruinous state the Coliseum appears to be.

MRS. F.

When we consider the number of circumstances which combine to destroy the works of art, it is surprising that so many monuments of the ancients have been handed down to us.

ESTHER.

The action of the atmosphere added to that of water, gradually decompose the materials of which they are built.

MRS. F.

Yes; and many other powers of nature assist

\* *Consolations in Travel*, p. 6.

is the work of destruction, nor is the agency of organised beings less active. "A polished surface of a building, or a statue, is no sooner made rough from the causes that have been mentioned, than the seeds of lichens and mosses, which are constantly floating in our atmosphere, make it a place of repose, grow and increase; and from their death, their decay, and decomposition carbonaceous matter is produced, and at length a soil is formed, in which grass can fix its roots. In the crevices of walls, where this soil is washed down, even the seeds of trees grow, and, gradually as a building becomes more ruined, ivy and other parasitical plants cover it. Even the animal creation lends its aid in the process of destruction, when man no longer labours for the conservation of his works. The fox burrows amongst ruins; bats and birds nestle in the cavities in walls: the snake and the lizard likewise make them their habitation. Insects act upon a smaller scale, but by their united energies sometimes produce great effect; the ant, by establishing her colony and forming her magazines, often saps the foundations of the strongest buildings, and the most insignificant creatures triumph, as it were, over the proudest works of man. Add to these sure and slow operations, the devastations of war, the effects of the destructive zeal of bigotry, the predatory fury of barbarians

seeking for concealed wealth under the foundations of buildings, and, tearing from them every metallic substance,—and it is rather to be wondered, that any of the works of the great nations of antiquity are still in existence.” \*

ESTHER.

Were not the ruins of Rome much injured by being employed as fortresses?

MRS. F.

Yes; during the civil dissensions of the middle ages, the great Roman families used them as their strongholds. The Coliseum was alternately occupied by the Frangipani and Annibaldi; the theatre of Marcellus, by the Pierleoni and Savelli; while the Frangipani also took possession of the arch of Janus, and the tomb of Cæcilia Metella served as a fortress to Pope Boniface VIII.

ESTHER.

Of what kind of stone is the Coliseum built?

MRS. F.

This edifice is of travertine, and the seats were covered with white marble. Ancient

\* Consolations in Travel, p. 272.



Rome was built of two kinds of stone, termed by the modern Italians, Travertino and Piperino.

ESTHER.

Will you describe them to us?

MRS. F.

Travertino is limestone formed by the deposits of the calcareous springs in which Italy abounds. These sources, probably from the volcanic nature of the surrounding country, are strongly impregnated with carbonic acid, which dissolves a portion of the calcareous rocks over which their waters pass. The acid is dissolved by the atmosphere, and the calcareous matter or limestone deposited. Thus is formed the stone of which Rome is built, and the water of the falls of Tivoli and Terni, and many others in the Tuscan, Roman, and Neapolitan states are of the same nature.

ESTHER.

I think that when you showed me a specimen of the stone of which the temples at Paestum are built, you told me that it was formed in the same manner.

MRS. F.

Yes; the stone to which you allude, is formed by the deposits of the river Silaro; and when

we visited the magnificent ruins at Pæstum, we also went to a spot where the process of vegetation is going on, at the same time, with the formation of the stone. It was a large pool, the sides of which were covered with reeds, and of these we carried away several specimens in which the reed was perfectly imbedded in the calcareous matter which the water deposited. The Romans called this stone Lapis Tiburtinus; they procured it from quarries between Rome and Tivoli.\*

ESTHER.

And the Piperino?

MRS. F.

Is a rock of volcanic origin of a greyish colour, sprinkled over with specks of mica, iron, &c., which, from their resemblance to pepper, give name to the stone. The Romans called it Lapis Albanus, because they procured it from Mount Albano; its loose friable nature renders it unfit for exposure to the air, and hence, although antiquities of this stone are found underground in a perfect state, those which have been exposed to the influence of the atmosphere have suffered considerably. One of

\* At the Ponte Lucano. See *Consolations in Travel*, p. 117, for an interesting account of the formation of travertine.

the most interesting works of art constructed of piperino, is, the tomb of Scipio Barbatus\*, which was found in the sepulchre of that illustrious family, and is much admired for its elegance and simplicity of design.

ESTHER.

But how did it happen that his tomb was not of marble?

MRS. F.

Because, during the time of the republic, the Romans used no other than the common building stone of their country. Metellus, after his Macedonian conquests†, was the first to attempt the introduction of marbles into Rome. Crassus, Lucullus, and Sylla imitated his example; but it was not until the time of Augustus, that the luxury of marbles arrived at its height; and although, for forty years of his life, Augustus had occupied a house with no other ornament than a few columns of travertine, yet he boasted "that he found Rome built of bricks but would leave it of marble."

Horace refers to the indignation which the

\* He was consul B.C. 298, and conquered the Etrurians at Veii.

† About B.C. 148.

old Roman worthies would have expressed at the progress of this luxury, where he says,

“ How stern old Cato’s shaggy brows would bend ;  
How darkly glare our founder’s angry look ;  
For ill could they the conscript fathers brook,  
To see yon marble porticoes.” \*

So rapidly did the rage for marbles increase, that the quarries then known, were found insufficient to supply the demand, and the Romans pulled to pieces the houses, and even the sepulchres of their ancestors, in order to procure the marbles with which they were decorated. To such an extent did they carry this work of demolition, that Vespasian and his successors issued severe edicts against the practice, which, however, they were unable to stop.

#### ESTHER.

The Romans used ~~also~~ to paint their marbles.

#### MRS. F.

They did so. Under the reign of Claudius, they began to colour their marbles with veins and spots, to imitate the rarer kinds ; and in the time of Nero, they even went so far as to inlay the different sorts of marble into each other, so as to invent new varieties.

\* Horace, book ii. ode 15. translated by Mr. Milford.

## ESTHER.

To whom did the quarries belong?

## MRS. F.

At first the emperors claimed all the marble quarries as their own ; but finding that this law discouraged the search after new quarries, they afterwards confined their demands to one tenth of the produce ; and this compromise produced the desired end. Numbers of new quarries were daily discovered, particularly in Asia and Africa, which were opened with great rejoicings, and with religious ceremonies. These quarries were placed under the direction of imperial superintendents or procurators, and the luxury of marbles being at its height, during the persecutions of the Christians, those who escaped the summary punishment of the arena were condemned to work at the quarries. We read that St. Clemens\*, who was pope or bishop of Rome, in the reigns of Domitian, Nero, and Trajan, was sentenced, as a destroyer of idols, to be exiled beyond the Black Sea to the Chersonesus, and was led into a desert place where he found more than two thousand Christians condemned to the sawing of marble.

\* This is the same Clemens who is spoken of by St. Paul, *Philippians*, c. iv. v. 3. He is always represented with an anchor, having been thrown into the sea with one round his neck by command of the Emperor Trajan.

ESTHER.

And were not some of the Christians sent to work the quarries in Egypt?

MRS. F.

Yes. The porphyry quarries of the Thebaïd were also worked by the Christians; but the consequence of employing them at these occupations was, that when the emperors themselves embraced Christianity, there could not be found persons sufficient to carry on the works.

Constantine and his successors pillaged Rome of its marbles to decorate Constantinople, and so rich was the new capital from the spoils of the old, that when Mahomet II. took the city, he was more anxious to possess the marbles than any other part of its treasures. It is related of him, that on going into the church of St. Sophia, he saw a Turk in the act of taking some pieces of marble out of the pavement. The indignant monarch immediately struck him down with his scimitar, exclaiming, "Do you not recollect that I have generously given to my soldiers the people and the riches of the city, provided they left me the stones and the buildings?"

ESTHER.

Is not Ravenna also very rich in marbles?

MRS. F.

Yes. The Exarchs were no less rapacious

than the Eastern emperors in despoiling the imperial city for their seat of government, and the churches of Ravenna are filled with rare and costly marbles.\* When we recollect the numbers that have been thus carried away, the quantity that has been destroyed by barbarians, by fire, by inundations, and the barbarism of the age, we are surprised to find, from the enumeration of an accurate observer†, that there are still 6067 ancient marble columns remaining in Rome.

## ESTHER.

Whence did the ancients procure their statuary marble?

## MRS. F.

They had several varieties of white marble, the principal of which were the Parian, known by its whiteness, its large glittering crystals, and its semi-transparent quality; the Pentelic, distinguished by its greenish or greyish veins, and which came from a mountain near Athens; and the Luna or Carrara marble, much closer and finer in its grain than the foregoing varieties.

\* Charlemagne again, by permission of the Pope, pillaged the palace of Ravenna of its marbles, which he carried to France.

† See "*Trattato delle Pietre Antiche*," by F. Corsi, the diligent collector of the series of a thousand specimens of ancient marbles, presented by Mr. Jarrett to the University of Oxford. Most of the foregoing details are taken from the above work.

The Romans called it *Marmor Lunense*, because it was shipped at the bay of Luna, now the gulf of Spezia, one of the most beautiful bays of that coast.

HENRIETTA.

Were you ever at Carrara, aunt?

MRS. F.

Yes, and a most interesting excursion it proved. The Carrara mountains abound in beautiful flowers, and the quarries are well worth visiting. The immense masses of this dazzling white marble, glittering in the sun (for it is hewn out of the side of a mountain), have a most imposing effect, and it strikes the traveller with surprise, to see a material which he has been accustomed to look upon as so precious, applied to the commonest purposes. The roads are mended with marble, the doorways, window-cases, steps, &c., not only of the houses of the peasantry, but even of their very cowsheds, are all made of marble.

ESTHER.

Where did the ancients procure their ornamental marbles?

MRS. F.

It is singular, that although they possessed



them in such great profusion, yet the quarries from which they were procured, remain either totally unknown, or their localities are only inferred from the names given to the marble by the ancients. Except in Egypt, I do not think that any of the quarries have been re-discovered, but we know that Asia Minor, Greece, and the islands of the Greek Archipelago, Egypt, and the northern coast of Africa, supplied the Romans with their most precious marbles.

The *verde antico* indicates by its ancient name (*Lapis Tessalicus*), that it was brought from Thessaly. The *giallo antico* (*Marmor Numidicum*), that it was the produce of Numidia; and this marble is still found in abundance among the ruins of Carthage.

ESTHER.

And the *rosso antico*?

MRS. F.

It is extraordinary that although we find this marble in such profusion at Rome, its locality is totally unknown to the moderns; it is, however, surmised, that it was brought from some part of Asia Minor. The quarries of the *nero antico*, were in Laconia, as were also those of the beautiful green porphyry denominated *serpentino*.\*

\* *Lapis Lacedæmonius.*

## ESTHER.

I have often heard people who have been at Rome, talk of the marble columns of the church of St. Paul.

## MRS. F.

They are of the beautiful purple veined marble termed *pavonazzetto*, which was brought from Phrygia, and was the favourite marble of the emperor Adrian.\* The island of Eubœa produced the green and white marble called *cipolino*; Scio, the beautiful miscalled *Africano*†, and all the porphyries, and most esteemed kinds of granite, came from Egypt, from the Thebaid, the vicinity of the isthmus of Suez, &c. Many of these quarries have been visited by recent travellers, who have found in them inscriptions recording the names of the sovereigns by whose orders they had been worked.

\* These columns at St. Paul's formed part of the decorations of the mausoleum of Adrian (the modern castle of St. Angelo).

† Marmor Chium.

## CHAPTER II.

## SOME CURIOUS TROPICAL PLANTS.

SANDALWOOD AND ITS USES. — CHINESE PASTILLES OF AGILA WOOD. — RICE PAPER AND THE PLANT WHICH PRODUCES IT. — GENOESE ARTIFICIAL FLOWERS. — RIPENING OF THE WOOD OF PLANTS. — THE PITCHER, AND OTHER WATER-YIELDING PLANTS. — COFFEE, AND ITS SUBSTITUTES. — TEA. — OPIUM. — THE PERUVIAN COCA. — ARISTOLOCHIA. — GIGANTIC FLOWERS. — QUASSIA. — WIND ESSENTIAL TO THE HEALTH OF PLANTS. — DIAMOND BEETLE. — FIREFLY. — GLOWWORM.

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“Nature never did betray  
 The heart that loved her! 'Tis her privilege,  
 Through all the years of this our life, to lead  
 From joy to joy, for she can so inform  
 The mind that is within us, so impress  
 With quietness and beauty, and so feed  
 With lofty thoughts, that neither evil tongues,  
 Rash judgments, nor the sneers of selfish men,  
 Nor greetings where no kindness is, nor all  
 The dreary intercourse of common life,  
 Shall e'er prevail against us, or disturb  
 Our cheerful faith that all that we behold  
 Is full of blessings.”

WORDSWORTH.

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A VISIT to Mrs. Clifford was the amusement of the following day, and we will accompany our party in their walk round her hothouse, that we may glean some of the information which she so willingly imparted to her young friends.

MRS. CLIFFORD.

Since last you saw my collection, I have received this plant of the Sandal (*Santalum album*) which will be interesting to you all, as you are doubtless familiar with the strong aromatic perfume of its wood.

HENRIETTA.

Yes; I have a sandalwood box which was sent as a present to mamma from India.

MRS. C.

This tree, which is twenty years in arriving at perfection, is from two feet and a half to three feet in circumference, and the trunk attains from twenty to thirty feet in height. Some restrictions exist with regard to cutting it. It grows chiefly on the Coromandel coast; and that which comes from the Rocky Mountains produces the greatest quantity of oil. The Sandal is universally esteemed throughout India, and is also a great object of commerce with China. The trees are felled in the wane of the moon, the trunk is barked, and then cut into billets of about two feet in length. These are commonly buried in the earth for two months that the outer part may decay, or be consumed by the white ants, and leave only the heart wood which contains the essential oil, and

which alone, therefore, is esteemed of value. When taken up, the billets are smoothed, squared, and sorted. The wood is very heavy, and sinks in water. The deeper the colour, the higher the perfume, and hence the merchants sometimes divide the sandalwood into red, yellow, and white; but these are all various shades produced by the same species of tree. The nearer the root, the finer the perfume; and the tree is therefore cut as low as possible, and the billet nearest the root, commonly called root sandal, is most esteemed. The chips and fragments that remain from squaring the billets are employed for the distillation of the oil. The finest and largest pieces are sent to China, the others are consumed in India. The Chinese employ the sandalwood extensively in their idol worship, and the expressed oil being mixed with pastilles is burnt in their temples. A piece of sandalwood is esteemed by the Chinese the most acceptable offering which he can make to his idol; and the larger billets, presented by the rich, are reserved for great occasions.\*

MRS. F.

Some commentators are of opinion that the almug or alium tree, brought by the fleet of

\* Hooker in Botanical Magazine, and Bennett's Wanderings in New South Wales.

### 30 CHINESE PASTILLES OF AGILA WOOD.

king Hiram from Ophir, and so largely employed by Solomon in the building of the temple, was the sandalwood.\*

MRS. C.

The Chinese also burn another kind of pastille in their temples, which is made from the Agila wood (*Aquilaria agallocha*) pounded and formed into a paste, and then laid over a reed, or a small strip of soft wood about the size of a bullrush. This wood is a royal monopoly.†

ESTHER.

Is not rice paper brought chiefly from China?

MRS. C.

Yes. Until lately, little was known respecting the nature of this substance, and its name misled people still more in their ideas upon the subject. It now appears, that rice paper is a substance which undergoes but little preparatory process, being the cellular tissue or pith of an Indian plant belonging to the natural order Leguminosæ. This plant (*Æschynomene paludosa*) grows abundantly in the marshes of Bengal, and on the borders of the extensive lakes situated in the provinces between Calcutta and

\* Kings, Book I. chap. x. verse 11, &c.

† Finlayson's Mission to Slam.

Hurdwar. I have seen a dried specimen of the plant in the collection of the late General Hardwicke; it is of a low, straggling growth, and seldom exceeds a diameter of two inches and a half in the stem.

ESTHER.

But the sheets of rice-paper are sometimes a foot in length, and from five to six inches wide.

MRS. C.

True; but the plant is cut vertically round the stem, so as to unroll like a scroll of paper; and this accounts for it giving a breadth so much more considerable than you would imagine from the diameter of the stem. The length depends upon the knots or joints in the stem; the longest and most perfect are, of course, selected; but this transverse septum or joint seldom admits of the stem being cut in lengths of above nine to ten inches.

ESTHER.

Has rice-paper been long known in this country?

MRS. C.

It is now about thirty years since it was first brought over by Dr. Livingstone, who

gave a quantity of it to a Miss Jack, celebrated for the beauty and accuracy of her artificial flowers. These, when formed of rice-paper, obtained additional popularity; they were eagerly sought after, and so highly admired, that for one bouquet, their maker received from the Princess Charlotte a present of £70.

MRS. F.

They could not have surpassed in beauty the flowers manufactured at Genoa, which are made at the *Conservatorio delle Fieschine*, one of those noble charitable institutions of which the Geneose nobles have more reason to be proud than of their marble palaces.\* The material employed for the petals of the flower is the cocoon of the silkworm after the silk has been wound off; and these flowers are more transparent and more exquisitely finished than any others I ever saw. I did not witness the process by which the cocoon is prepared, for strangers are not admitted to the room where the work is going on.

\* The nobility of Genoa have ever vied with each other in their works of public utility and philanthropy. The Cambini family are said to have distributed among the poor, 1000 *scudi* a day in food, until the French invasion ruined public credit and destroyed their funds. The Albergo dei Poveri owes its origin to the Brignoli Family, the *Conservatorio delle Fieschine* to the Fieschi, the orphan asylum to the Carega,—in short, almost every public building and public charity attest the greatness of the nobility of "*Genova la superba*."



ESTHER.

I read, the other day, that artificial flowers were invented by the Egyptians.\*

MRS. F.

These people appear to have been acquainted with every modern art and manufacture, but I must apologise, Mrs. Clifford, for interrupting you, in your account of the flowers made of rice-paper.

MRS. C.

When first procured by Dr. Livingstone, the sheets of rice-paper did not exceed four inches square, but the Chinese have since greatly improved the manufacture.

ESTHER.

Do they make much use of it themselves?

MRS. C.

They employ it for artificial flowers and for drawings. In India, the natives apply the plant to many useful purposes. It is brought in great quantities to the Calcutta bazaars, in a green state, and the thickest stems are cut into latines, from which the natives form artificial flowers, and various fancy ornaments to de-

\* Wilkinson's Thebes.

corate their shrines at the Hindoo festivals. The Indians make hats of rice-paper, by cementing together as many leaves as will produce the requisite thickness; in this way, they form them into any shape they please, and, when covered with silk or cloth, these hats are strong and inconceivably light. To fishermen this plant is an article of the greatest utility: it forms floats of the best description for their extensive nets, for which purpose the slender stems of the plant are bundled into fascines about three feet long. With one of these under his arm, and his net on his shoulder, every fisherman goes forth to his daily occupation, and without a boat, stretches his net in the deepest and most extensive lakes, supported by this buoyant faggot.\*

MRS. F.

Thank you Mrs. Clifford, for this interesting account.

MRS. C.

When we return to the house, we will hold a sheet of rice-paper to the light, and you will clearly discover its beautiful cellular tissue, such as no art of man could produce or imitate.

\* Hooker's Botanical Miscellany, vol. i. p. 88.

MRS. F.

Will you point out your Mango tree (*Mangifera indica*) to Henrietta, if you please?

MRS. C.

Here it is, but I am sorry to say that it has not flowered since the first summer after I received it from India, when it was covered with bloom. But it is no uncommon occurrence for the trees of tropical countries to succeed well the first year after they are brought to our cold climate, and even to flower and bear fruit; while they afterwards gradually decrease in strength and vigour.

MRS. F.

How do you account for this?

MRS. C.

From the circumstance of their buds, the first year, being formed upon wood which has acquired its perfect consistency, or, (as the gardeners term it) has *well ripened* in its native country: whereas the wood of the following year, being formed in a climate destitute of the light and heat necessary to bring the wood to perfection, the buds which proceed from it are consequently weak and imperfectly matured. De Candolle found that vines of the south of France,

fruited the first year after they were carried to Geneva, but afterwards ceased to produce grapes.

The better the wood has ripened, the better a plant is able to resist the frost; hence trees are less liable to be injured by the cold after a warm dry summer, than after a cold wet season; hence, also, plants freeze less in a good soil than in a bad one; and hence many plants freeze at a less degree of cold, in a country where the summer is not warm, than they do in one where the summer heat is very great. The tea resists in China, where the summer is very hot, a degree of cold which infallibly kills it here, because the wood in England, having less summer heat to ripen it, is the less able to resist the effect of the winter's cold.\*

MRS. F.

I have a full illustration of these facts, in the case of a peach-tree in my garden. After the hot summer of 1835, the tree bore abundance of fruit, but this winter, in consequence of the cold wet August of last year†, the wood is so imperfectly ripened, that the tree had no fruit buds upon it, and has been severely injured by the frost.

\* D. C. *Physiologie Végétale*, p. 951.

† 1836. *Fact.*

## ESTHER.

Henrietta, here is the pitcher plant, of which mamma was showing us a figure in the Botanical Magazine.

## MRS. C.

This singular plant (*Nepenthes distillatoria*)\*, grows in swamps, partially immersed in water and partially entwined round the slender trees which grow in its vicinity. The Malays call it the monkey cup, and assert that this animal uses it as a drinking cup. I have also several species of another water-holding plant, the *Sarracenia*, a native of North America, where it is termed the Indian cup.

## MRS. F.

Whether the water contained in these leaves is secreted by the plants themselves, or whether they derive it from the atmosphere, is a point which vegetable physiologists have been unable to determine; but now that the *Nepenthes* is cultivated in our hot-houses, they will be better able to study this curious phenomenon. I alluded in a former conversation† to the Brazilian tree called *Casalpinia pluviosa*, one of the most extraordinary of the water-yielding plants;

\* There is also another species, *N. phyllamphora*.

† First series, chap. 19.

but it has been observed by the Father Léandro only, and its history is as yet unknown. The common teazel (*Dipsacus sylvestris*) contains water in the hollows formed by its leaves and stem, but that is merely an exhalation from the atmosphere.

FREDERICK.

I see that your coffee trees are covered with berries.

MRS. C.

Yes; one year my plants produced so abundantly, that I had a cup of coffee from berries grown in my own hot-house.

HENRIETTA.

What kind of coffee do you cultivate?

MRS. C.

There is but one species of coffee (*Coffea arabica*) known. The difference in its flavour and quality is attributable solely to the influence of soil and climate.

From Arabia, the coffee plant was first introduced into Batavia, whence it was spread into the Indian Archipelago. The offsets of a plant presented to Louis XIV. from the hot-house of Amsterdam, first transmitted it to the Western hemisphere. Louis sent them by his

governor M. Deselieux, to Martinique. On the passage, a scarcity of water rendered it necessary to give each person a certain allowance, and M. Deselieux evinced his zeal in the cause, by depriving himself of water, in order to bestow his share upon the plants confided to his care. He was amply repaid for the sacrifice, by the coffee plants arriving in good health; and from Martinique, they have been diffused over the other West Indian Islands, a great part of South America, and the Southern States of North America.

MRS. F.

What is the nature of the soil which produces the Mocha coffee?

MRS. C.

The finest Mocha is produced in a very dry climate and an arid soil, on the slope of mountainous situations; but I have read that the Malabar coffee is so fine, as to be frequently sent to Mecca, and thence exported as the true Mocha.\* The coffee of the Isle of France is also much esteemed; it is packed up in bags made of the leaves of the *Vacois*, a species of Screw Pine (*Pandanus Vacqua*). The coffee shrubs are set in rows at the distance of six feet,

\* Royle's Botany of the Himalaya Mountains.

and are not suffered to grow higher than the hand can reach. One slave can manage a thousand plants. The average duration of the shrub is seven years, during four of which, it yields fruit. The scarlet berry of the coffee is about the size of an acorn; these berries are picked off, as they become ripe, and are exposed in the sun, until the pulp is changed into a dry, brittle husk; they are then beaten in wooden mortars to disengage the seeds, of which each berry generally contains two. They are afterwards carefully examined, and those which have the slightest imperfection are rejected.\*

MRS. F.

What is the produce of a coffee shrub?

MRS. C.

The average crop does not exceed from a pound and a half to two pounds on each tree, but a single plant will sometimes produce from sixteen to twenty pounds.† In 1817, the total consumption of coffee in Europe was nearly 140,000,000lbs. of which 23,000,000lbs. were consumed in France alone.

MRS. F.

In the consumption of tea, England can

\* Hooker's Botanical Miscellany, vol. 2.

† De Humboldt.



show an equally large proportion. Out of 31,000,000lbs. of tea exported from Canton in 1804-6, 21,000,000lbs. were consumed in Great Britain; and yet, so recent is the period when this beverage became generally known, that a pound of green tea being sent (within the memory of persons now living) to a lady in Scotland, she boiled it and served it up with melted butter to eat with beef, complaining, "that no cooking she could contrive, would make these *foreign greens* tender." In 1666, tea was sold at sixty shillings a pound; but the practice of tea drinking was then not uncommon in England, for in 1660, a duty of eightpence a gallon was laid on the "liquor," i. e. tea, "made and sold in all coffee-houses." \*

## ESTHER.

Did not the French attempt to substitute the wild endive (*Cichorium Intybus*) for coffee?

## MRS. F.

Yes. During the war, when all communication was cut off between France and her colonies, Napoleon caused the endive (*chicorés*)

\* Hooker in Botanical Magazine. Little is really known about the preparation of tea, but it appears that, with proper management, black and green tea may be made indifferently from the same plant, though *Thea viridis* is preferred for making the green, its leaves being broader and thinner than the other species.

to be used. The stalks and roots were cut into small pieces, roasted and ground. I recollect that on the return of the Bourbons, a song was composed to the air of Henri Quatre, of which one of the stanzas was as follows :—

“ Adieu Buonaparte, adieu la *chicorée*  
Plus d'amertume dans notre café au lait ;  
Nous avons du sucre, du café, et du thé.”

MRS. C.

Yes, but endive resembled coffee in its bitterness and burnt flavour only. It appears that the aroma of coffee exists in the horny coating (or perispermum) of the seed; and the only vegetable substance which possesses the same taste is the seed of the butcher's broom (*Ruscus aculeatus*). This alone makes a good substitute for coffee, but if used it would require the addition of a bitter to complete the resemblance.\*

MRS. F.

The stimulating effect of the strong coffee made in the East is extraordinary. Captain Skinner states that the Arab of the desert will go without food for four-and-twenty hours if he can have recourse to a small quantity of coffee; and I have also understood, that this beverage forms the chief nourishment of the government

\* De Candolle. *Propriétés Médicales des Plantes.*

couriers when on their longest and most rapid journeys. I heard of one who carried despatches from Constantinople to Calais, travelling day and night, at the rate of six miles an hour, who took nothing but coffee during the whole of this extraordinary journey.

MRS. C.

Opium is used by the natives of India in times of famine\* to allay the cravings of hunger, and has even been given by them to their horses in long marches, with the same object.

ESTHER.

And the leaves of the coca are also applied by the Indian messengers to the same purpose.

HENRIETTA.

Yes, I recollect my aunt mentioning this plant last holidays.†

MRS. F.

I then only slightly alluded to the coca, but I will now give you a more detailed account of this singular nourishment, the use of which is as ancient as our knowledge of Peruvian history; for wherever the Incas penetrated, they distri-

\* In the famine which prevailed in the East Indies in 1770, opium was purchased by the unhappy sufferers.

† First Series, chap. 12.

buted it as a boon among the conquered nations. The coca is a shrub of from six to eight feet high, covered with small white flowers. The leaves, which form the great object of trade in Peru, are gathered and carefully dried. The scent of the leaf is very slight, and, when taken in small quantities has merely a grass-like or bitterish taste. Its great attraction consists in its stimulating effect on the nerves, upon which it acts like opium. Rude nations have ever sought for artificial excitements; and the lower a people stand in the scale of intellectual ability, so much the more necessary to them are those means of exhilaration which remove for a time the consciousness of the dreary waste within. The passion of the Indian for the stimulus of coca is extraordinary. Stretched unsocially in the shade, he is to be seen alternately filling his mouth with coca-leaves and finely-powdered chalk. While thus engaged, not all the haste and impatience of the traveller, not even the approach of a heavy storm, can arouse him from this state of intolerable apathy. The servant would instantly quit any white master who attempted to restrain him in this indulgence, and would sooner be deprived of necessary food, than employ, in any other manner, the period allotted to the indulgence of his coca. And it is in quiet retirement only that

this pleasure is perfectly unalloyed : it is lost by riding or walking ; so that if the traveller would keep his companion in good humour, whether proceeding by mules or in a boat, he must, four times a day, consent to these tantalising pauses, a sacrifice which even the Peruvian farmers are compelled to make to the infatuation of their workmen.

The miner will work for twelve hours at a time, without any other nourishment than a handful of parched maize ; but every three hours he takes a pause, for the purpose of chewing coca.

The Indian traverses the Andes on foot, over rough roads, with a load of a hundred-weight on his back, and accomplishes frequently ten leagues in eight hours, merely chewing coca from time to time.

During the revolutionary war, the undisciplined patriot troops, stimulated by ample supplies of coca and brandy, traversed long distances in a very short space of time, and thus became dangerous to the Spaniards. Where Europeans would have halted to recover from their fatigue, the ill-clad Indians merely paused for a short interval to chew their coca, and then resumed their march. The stimulating effect of coca is most fully developed on occasions like these, when the frame is exhausted by toil ; it is then that

the Indian will retreat to some gloomy wood, and, throwing himself under a tree, will yield himself, for two or three days, to the occupation of chewing coca, and then return home with trembling limbs and pallid countenance, the wretched victim to this unnatural stimulant. Once seized with the passion for coca, the habit is never cured; he is a ruined being, and ere long, falls a victim to the use of this exciting herb, which, after all, affords but a short alleviation to the misery of the thousands whose destruction it inevitably occasions.\*

MRS. C.

Thank you, for these particulars.

ESTHER.

What a curious flower this is, in bloom over our heads!

MRS. C.

It is an *Aristolochia*; the largest flowers of this genus (*Aristolochia cordifolia*) are sixteen inches in diameter. De Humboldt describes the Indian children as putting the flowers of an *Aristolochia* upon their heads by way of caps, and states that he found some of these plants (*A. cordifolia* and *gigantea*) climbing up

\* Hooker's Companion to the Botanical Magazine.

the trees, on the borders of the Magdalene, the corollas of which were four feet in circumference.

MRS. F.

The flowers of the laurel-leaved Magnolia (*M. grandiflora*) have been measured of the diameter of nine inches, and you all have read of the gigantic Rafflesia, and have, perhaps, seen the model of its flower, in the room of the Horticultural Society in Regent-street.

MRS. C.

Here is the Quassia (*Q. amara*), which I point out to you, that I may tell you the origin of its singular name. It is so called after a negro of Surinam, who discovered its febrifuge properties, and who, for a valuable consideration, communicated the secret to Governor Dalbergh, by whom specimens were sent to Stockholm, and the plant was named Quassia by Linnæus, in honour of the discoverer.

MRS. F.

I see that you admit a current of air into your hot-house.

MRS. C.

Yes, I constantly do in summer, for the stagnation of the air injures the health of the plants. Indeed, it has been proved by experi-

ment that moderate wind is very conducive to the growth of plants; and when trees are kept in repose by being tied too closely to a stake, this unnatural state of quietness impedes their vegetation, and diminishes their strength.\* I therefore never stake my trees unless I find it absolutely necessary, but allow them to have the full benefit of the effects which the wind exercises over them, in increasing their circulation, and promoting their growth.

HENRIETTA.

How gracefully that Mimosa bends its branches!

ESTHER.

Yes, but how pretty it must look in Brazil, where the Diamond Beetles (*Entimus imperialis* and *nobilis*) sometimes cluster upon them in such myriads that the branches are absolutely bent down under the weight of their glittering burden.

HENRIETTA.

The fire-flies also must be very beautiful.

MRS. F.

Your mention of the fire-fly (*Elator noctivagus*), reminds me of a curious circumstance

\* D. C. Phys. Vég. p. 1177.



which took place at Corfu. A young officer, who had lately joined the garrison, was one evening on duty, when he observed sparks issuing, as he thought, from the powder magazine. The alarm was immediately given, and the guard turned out, when it proved, on further examination, that some fire-flies flitting over the magazine had awakened the apprehensions of the young officer, who had never seen these insects before.\*

HENRIETTA.

Is the fire-fly a native of England?

MRS. F.

No; but the winged fly of the glow-worm is luminous, as well as its crawling companion; and I have constantly seen it in a summer's evening fly into the rooms, attracted by the light of the candles.† It is generally about the first week in July, that these insects make their appearance; but the time when I saw them in the greatest numbers, was towards the end of June, 1825. I was then at Heidelberg; and one afternoon that we were walking among the ruins of its splendid castle, we became so interested in recalling the fortunes of Elizabeth of Bohemia, the wars of the Palatinate, and all the other

\* Fact.

† In 1835, 1836, and 1837.

events of historic interest of which this castle was the theatre, that we were unconscious how late it had become before we turned our steps homewards. The green banks of the path which led to the town, were covered with glow-worms; and myriads of luminous insects were flying about, which we easily caught with our hands. At the time, we took them to be fire-flies; but on comparing them subsequently with the plates of that insect, we found that they were the winged glow-worm (*Lampyrus noctiluca*) of our own country, which we never before had happened to have seen.

MRS. C.

Then you are fortunate in having met with them so often, for they are generally considered to be of unfrequent occurrence.

HENRIETTA.

Aunt, you seem to meet with some object of interest wherever you go.

MRS. C.

I dare say, my dear Henrietta, that you have read Miss Aikin's excellent story, called "Eyes and no Eyes." An observing mind, like your aunt's, will every where discover sufficient to admire and instruct, where others see nought

but a dreary waste. "It is for the naturalist to find charms and attractions, subjects for musing and contemplation, in the most ordinary scenes, and in objects of every-day occurrence, in the path where he treads, in the hills with which he is encompassed, and in the atmospheric changes of the spacious canopy of heaven, spread over all."

"God speaks through all, and is in all things found."

## CHAPTER III.

## 'DOMESTICATION OF ANIMALS.

INTELLIGENCE OF A RAVEN. — THE AGE OF BIRDS. — ANECDOTE OF A ROSELLE. — FAMILIARITY OF FISHES. — FISH PONDS OF LUCULLUS. — DOMESTICATION OF CARP, &c. — OF A MOLE — OF A TOAD. — PELISSON'S TAME SPIDER. — PHEASANTS AT GOODWOOD. — LEARNED ANIMALS. — SECRET OF THEIR EDUCATION. — THE SMUGGLING DOGS OF THE JURA. — REASON AND INSTINCT.

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“ There is a book, who runs may read,  
Which heavenly truth imparts ;  
And all the lore its scholars need,  
Pure eyes and Christian hearts.  
The works of God above, below,  
Within us, and around,  
Are pages in that book to show  
How God himself is found.”

KEEL.

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FREDERICK.

AUNT, the raven has carried off my penknife,  
and has hidden it in a tree.

MRS. F.

He is indeed a sad thief; the other day he stole thirteen eggs from the nest of a hen, and the most curious part of the circumstance is, that he contrived to carry them all away without

breaking one of them, although he had to fly over a paling six feet high.

HENRIETTA.

And, a week since, he carried off the eggs of a guinea fowl in the same manner ; having discovered her nest, he every day stole her egg as soon as it was laid.

FREDERICK.

This was the more provoking from the trouble which we all took to find out where the guinea hen laid ; and I do not think that we should ever have succeeded, had not the bailiff told us that these birds always make their nests open to the east. This information guided us very much in our search, and saved us hunting for it in several other directions.

HENRIETTA.

The raven is certainly a very clever bird ; it is astonishing how distinctly he calls us all by our names ; and I have frequently had a useless walk, thinking I have been wanted in the house, when it has proved to be only the summons of old Jack that I have obeyed. But he is flying this way, for I hear the heavy flapping of his wings.

MRS. F.

I suppose he is come to see if we have anything to give him; but he fares well, for he feeds with the dogs; and he is such a tyrant, that neither dog nor cat dare dispute with him the possession of any morsel which he has selected.

HENRIETTA.

Ravens are very long lived?

MRS. F.

The raven, the eagle, the domestic goose, and the swan, have all been known to live upwards of a century, which is the same term of existence as that assigned to the elephant, the crocodile, and the carp. Gesner mentions a pike which was cast into a pool in Suevia, in 1230, and was taken out in 1497, being then 267 years old; but no other animal is known to attain the age which naturalists give to the whale. \*

ESTHER.

But, to return to the raven; it is certainly a most sagacious, though a most mischievous animal. We had one which used to live in the drying ground, and its great amusement was to pick the clothes-pegs off the lines, and collect them in a heap. The laundry-maid, not liking

\* See 1st Series, chap. xviii.

the trouble he gave her by this operation, always made a point of shutting the raven up, on the day when she hung out the clothes to dry. This manœuvre the raven soon discovered, and ever after invariably hid himself every Wednesday, which he had ascertained to be the day of his weekly incarceration.

MRS. F.

That dogs and cats will soon learn to discern stated periods is well authenticated, but that birds should acquire such intelligence may appear to us more extraordinary. We had once one of those beautiful birds of New Holland, called the Roselle, or Rose Hill Parrot, which for many years delighted us with its clear, melodious whistle; and we observed that it washed itself upon one day in the week only; and so regular was it in confining its ablutions to the stated day, that it never went into the water on any other, although a bath was always standing in its cage.

ESTHER.

All animals may be readily taught to obey any given signal which summons them to receive their food. There are many instances of fish being so tutored. Eels have been taught to obey

a whistle\*, and the Chinese gold-fish come when called by the ringing of a bell.

At the gardens of Charlottenburg, near Berlin, the carp are collected together by ringing a bell, at the sound of which the fish may be seen in shoals, putting their noses out of the water. (Hand Book, p. 277.)

MRS. F.

Nor must we forget the fish ponds of Lucullus, where the fishes were kept belonging to the Romans of Baiæ. Pliny states, that these fishes were so tame as to feed out of the hand; and when called by their feeders, they leaped out of the water. Each fish, he says, knew its name, and several of them were decorated with necklaces.

ESTHER.

This account is rather marvellous; but I certainly have heard of a lady who asserts that each of her tame gold and silver fishes knows its own name; and as she calls Calypso, Neptune, &c, that fish upon which she had bestowed the appellation would come. There is a gentleman living near Braintree, in Essex, who has some tame carp, which know his whistle; and hearing his summons, immediately swim towards him to receive their accustomed repast.

\* Ellis's Polynesian Researches.



MRS. F.

And at Ferney, I saw the fishes swim directly to the gardener when he made a splashing in the water : but these instances of the familiarity of fish are very frequent. Even the common mole may be domesticated, for I know of a gentleman who, for some time, kept one of these animals in a box filled with turf, and whenever he tapped the side of the box, the mole would immediately come out, jump upon him, and eat from his hand.

FREDERICK.

And our gardener keeps a pet toad in the greenhouse to destroy the ants, [which injure the grapes and the plants. This animal is so tame that he comes directly when called ; but I believe toads are easily domesticated.

ESTHER.

Nor must we omit the story of M. Pelisson, who, when confined in the Bastille, tamed a spider, and taught it to come for food at the sound of an instrument. Kirby and Spence also state that a manufacturer in Paris fed 800 spiders, which had become so familiar that, whenever he entered the apartment, "which he usually did bringing a dish filled with flies, but

not always, they immediately came down to him to receive their food."\*

MRS. F.

At Goodwood, the seat of the Duke of Richmond, the pheasants are taught to obey a signal. They are reared in a large enclosure, which was formerly a chalk pit, whence they are suffered to wander into the woods; but, at the sound of a bell, they daily repair to the chalk pit to be fed.

FREDERICK.

Aunt, did you ever see the learned dogs, which were exhibited in London, some years since?

MRS. F.

Yes, and I also saw the learned pig.

FREDERICK.

How very wonderful their performances were, in playing cards, spelling, calculating, and so forth!

MRS. F.

Implicit attention to a sign from their master, is, I believe, the whole secret of the education of learned animals.

HENRIETTA.

Then don't you think, aunt, that they know one card or letter from another?

\* Vol. IV. p. 22.

MRS. F.

Most assuredly not; their whole education consists in being taught to understand a secret signal, made by their master.

FREDERICK.

But, how does that enable them to choose the right card or number?

MRS. F.

Merely by obedience to their master's signal.

ESTHER.

And what do you suppose, mamma, to be this secret sign of intelligence between the man and his dog? for he does not appear to direct the animal either by words or action.

MRS. F.

If you press your thumb nail against the nail of one of your fingers, a slight clicking noise is made, so faint that it would hardly arrest the attention of any but one prepared to detect it. This, I believe, is the usual signal employed; but I will tell you my reasons for coming to this conclusion.

ESTHER.

Thank you, mamma; we should much like to hear them.

MRS. F.

Having been previously told, by an intelligent foreigner, that this click with the nail was the usual sign of intelligence between the animals and their masters, I went, thus warned, to see the two learned dogs, to whose performances you have been just alluding. You are aware, that, in all the feats which these animals perform, the cards, numbers, or letters, are all spread out in a circle upon the floor, at short distances from each other. When the dog had received his orders, he walked leisurely round the circle pausing slightly at each card, apparently as if to examine it; but, in fact, in order to give his master time to make the concerted signal. When the animal arrived at the right card, I distinctly heard the man make a slight click, such as I have described, upon which the dog stopped, took up the card, and received the applause of the spectators for his sagacity.

Sometimes, the dog did not hear the signal the first time; but, in that case, he never attempted to select a card upon his own responsibility, but would patiently take another round, that the signal might be repeated.

FREDERICK.

Then this is the whole secret?

MRS. F.

It certainly was, in the case in question. I have not since seen any more learned animals to repeat my observations; but the individual who first told me the circumstance, assured me that every instance which he had witnessed, confirmed him in his belief that this is the customary sign employed.

HENRIETTA.

Then after all there is nothing so very wonderful in these learned animals.

MRS. F.

There, Henrietta, I do not agree with you; for it is to me very surprising, that animals can be brought to the state of intelligence and docility necessary to enable them so quickly to understand, and so readily to obey, the secret orders of their master. I fear there is some cruelty exercised in their education; and that the poor creatures have many blows and some starvation to encounter, before they are qualified for public exhibition.

ESTHER.

Did you ever hear, Frederick, of the smuggling dogs?

FREDERICK.

No ; pray tell me their history.

ESTHER.

Mamma will, I dare say, relate it; for she heard it from a lady whose brother was in one of the frontier custom-houses, and who therefore had the most correct information respecting them.

MRS. F.

You are, perhaps, not aware that there is always great smuggling going forward, in order to pass the Swiss watches and lace into France.

ESTHER.

The works of watches are manufactured extensively in the Swiss valleys of the Jura\*, whence they are sent to Paris or Geneva, to be put into cases and finished.

MRS. F.

Every means is taken to elude the vigilance of the French custom-house officers, who are very strict upon this frontier; and the following is one among the many expedients adopted:—Large dogs, of a peculiar race, are trained to

\* Chaux-de-Fond, Locle, &c. For an account of these valleys, see either Simond's Travels in Switzerland; or Etel, Voyageur en Suisse.

cross the mountains by the more retired passes ; and they are invested with a false skin, between which and their own coats the contraband goods are deposited. These animals travel in parties, a quick-scented dog being placed at a short distance in front of the others, as an advanced guard. If he sees a custom-house officer approaching, he immediately gives the alarm, and the party retreat, and pursue a more devious route, turning backwards and forwards until they have eluded the pursuit of the enemy. When all is safe, they again continue their journey, preserving always the same caution until they succeed in reaching their destination.

FREDERICK.

But how can these dogs be taught to avoid a custom-house officer ?

MRS. F.

By a cruel but simple expedient. Their masters, when instructing them in their duties, occasionally put on the uniform of a custom-house officer ; and when in this garb, they beat the poor dogs most unmercifully. Hence these animals acquire the greatest apprehension of any person in that costume, and fly from them with the greatest trepidation.

FREDERICK.

But, I suppose that they are sometimes caught?

MRS. F.

It does happen occasionally, that these fine creatures fall into the hands of the enemy; and in this case no mercy is shown them. They are brought to a regular court martial; the evidence against them is heard; and if found guilty, they are sentenced to be shot.

MARY.

Poor creatures! are they never pardoned?

MRS. F.

But seldom, for the French laws against smuggling are most severe. I do indeed know an instance of one dog being spared, for whose life great interest was made. Not many years since, he was still alive; having renounced his smuggling pursuits, and entirely overcome the prejudices of education, he was comfortably domesticated in a French *douane* as the faithful servant of —, a custom-house officer! But all this time we have forgotten the raven and Frederick's knife.

FREDERICK.

I have no chance, aunt, of finding it again.



for he is so sly, that while we have been talking, he has hopped off with it, and concealed it in some other of his hiding places.

ESTHER.

I never saw such instinct in a bird as this raven sometimes displays.

HENRIETTA.

One would almost think he reasoned.

FREDERICK.

But really some animals are so sensible that, if they had reason like ourselves, they could not act better.

HENRIETTA.

That reminds me of the lines of Cowper: —

“ Reas’ning at ev’ry step he treads,  
Man yet mistakes his way;  
While meaner things, whom instinct leads,  
Are rarely known to stray.”

Pope has also a passage upon instinct and reason, which I learned at school.

MRS. F.

Of reason and instinct we know nothing; and the subject is one of those which, in the present finite state of our faculties, we are not permitted to penetrate. “The secret things belong unto the Lord,” and the Christian phi-

losopher will be the first to admit with humility how vast those bounds are "which he cannot pass;" and how the greatest acquirements of the human mind "serve only to place him on the very frontier of knowledge."\*

"Instead of perplexing our minds about secret things, let us walk in the light which the Lord has graciously afforded us; and, conscious of our inability to comprehend his deep designs, let us adore the depth of the riches of his wisdom and knowledge, whose judgments are not to be investigated, nor his ways traced out; whose mind none can penetrate or comprehend; who needs and regards no counsellor; who first gives life and breath, and all things to every one; and to whom none can render any thing which he has not first received from him: for of him, and through him, and to him, are all things, to whom be glory for ever."†

\* Herschell's Preliminary Discourse.

† Scott, in his Commentaries.

## CHAPTER IV.

## THE COLOUR BOX.

INDIGO.—LAMPBLACK.—INDIGO.—ANECDOTE OF ST. ISIDORE AND  
 THE WELL.—GAMBOGE.—MADDER.—SAP GREEN.—BROWN  
 PINK.—LAKE.—BRAZIL WOOD.—PRUSSIAN BLUE—ITS DIS-  
 COVERY.—CARMINE.—VERMILION.—RED AND WHITE LEAD.  
 —NAPLES AND CHROME YELLOW.—FLAKE WHITE.—COLOURS  
 FROM COPPER,—FROM ARSENIC.—COBALT, ZAFFRE, SMALT,  
 AND POWDER BLUE.—ULTRAMARINE.—OCHRES AND EARTHY  
 COLOURS.—COLOURS OF THE EGYPTIANS.—MUMMY, AN  
 EPITOME OF THE ARTS OF THE EGYPTIANS.—DISCOVERIES  
 OF ROSSELLINI.—GRECIAN SAGES IN EGYPT.—AVERSION  
 OF THE PRIESTS TO HISTORICAL RECORDS.—MONUMENTS,  
 WHEN BUILT.—PALMYRA AND GENOA.—ROSETTA STONE.—  
 HIEROGLYPHIC WRITING.—REPRESENTATION OF THE JEWS  
 ON EGYPTIAN MONUMENTS.

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"First the flaming red  
 Springs vivid forth; the tawny orange next;  
 And next delicious yellow, by whose side  
 Fall the kind beams of all-refreshing green.  
 Then the pure blue, that swells autumnal skies,  
 Ethereal blaze; and then, of sadder hue,  
 Emerge the deepen'd indigo, as when  
 The heavy-skirted evening droops with frost;  
 Whilst the last gleamings of refracted light  
 Died in the fainting violet away."

THOMSON.

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## HENRIETTA.

AUNT, what is the name of this fine, warm,  
 brown colour with which you are drawing?

MRS. F.

It is called bistre.

HENRIETTA.

Then, I must next beg of you to tell me what bistre is; for it was only yesterday that we were talking about colours, and none of us knew from what half of them are produced.

MRS. F.

I shall be most happy to tell you. Let us begin with bistre, the colour in question, which is the burnt oil extracted from the ~~soot~~ of wood.

ESTHER.

What wood is used for the purpose?

MRS. F.

Beech is that which is best adapted for the manufacture; the wood must be perfectly dry before it is used. The best bistre comes from France. Suppose that we class the colours according to the different kingdoms to which they belong; and we will proceed with the vegetable, since we have begun with it.

Lampblack somewhat resembles bistre in its preparation. It is made, in England, at the turpentine houses, from the refuse of the resin-

ous substances which are there manufactured. This residuary or refuse resin is burnt in a furnace so constructed, that the dense smoke arising from it passes into chambers hung with sacking, upon which the soot is deposited, and from time to time swept off, and sold without any further preparation. When required for nicer purposes, it is prepared from the soot of linseed oil, by hanging a large copper pan over the flame of a lamp to receive its smoke; hence it is called lampblack. In Germany, great quantities of lampblack are manufactured, not from wood, but from a kind of pit coal; and, indeed, it appears from experiment, that the difference of soot does not depend entirely upon the quality of the material employed, but upon the manner in which it is burnt.

HENRIETTA.

Indigo, I know, comes from a plant.

MRS. F.

Yes, this fine blue is produced by the leaves of all the different species of indigo (*Indigofera*); but I believe it is principally procured from *Indigofera tinctoria* and *anil*. The plant contains the most indigo at the period of flowering. But the cultivation of indigo is an object of such national importance, that you must read some

detailed account of its growth and manufacture. It forms one of the most valuable articles of commerce in the East Indies, and parts of South America. \*

FREDERICK.

I wish, aunt, you would tell us all about it; I do so dislike reading dull accounts of manufactures.

MRS. F.

Indeed, my dear Frederick, you very much mistake my object in conversing with you, if you think that I intend to save you the trouble of investigating for yourself. On the contrary, I wish, by telling you a little, to awaken in you a desire of learning more. It is only by your own exertions, that you can become really well informed, and patience and perseverance are necessary to the task. A king† was told more than two thousand years since, by a wiser person than either you or I, that there was no "royal road" to learning; and rest assured that, if you wish to learn, you must read, and that diligently and patiently, and must not be deterred

\* The colouring matter called *indigotine* exists also in the woad (*Isatis tinctoria*), and in *Nerium tinctorium*, one of the oleander genus.

† See the anecdote of Ptolemy Philadelphus and Euclid.

by any little difficulty which you find in your way. Did you ever hear the story of St. Isidore and the well?

FREDERICK.

No, aunt; will you have the kindness to tell it us?

MRS. F.

St. Isidore, Archbishop of Seville, when a schoolboy, "was very idle, played truant, and ran away into the fields. After wandering about, he became weary and thirsty, and stopped at a well. The stone round the brink of the well was hollowed into grooves and channels. They excited the curiosity of the boy; and the good woman who was drawing water explained the cause of this appearance; the stone was channelled by the constant rubbing of the bucket-rope. The future bishop then bethought himself, that if the hard rock could thus be worn through by this soft and yielding substance, surely his own dulness might give way to application and industry; and thus pondering, he returned to his home, and instantly passed into a new life and being. The studies over which he had slumbered in weariness, now afforded nought but delight; and he prosecuted them

with such energy, that he became the most learned man of his age and country. In the rich monastery of St. Isidore, at Seville, a fragment of the well stone may yet be seen by the curious pilgrim.\*— But, to return to our colours.

HENRIETTA.

What is gamboge ?

MRS. F.

Gamboge is a gum resin, obtained by wounding either the shoots or the bark of a tree (*Stellagmatis Cambogioides*), which is a native of Siam and of Ceylon ; but it is often adulterated with the gum of a Malabar plant†, *Garcinia cambogia*.

ESTHER.

Madder, which I see in your box, mamma, is produced by the roots of a plant of the same name.

MRS. F.

Yes ; it is so. Madder (*Rubia tinctorum*) is extensively cultivated in Belgium, and used

\* Edinburgh Review, vol. xxxi. St. Isidore was born about 570, succeeded his brother as archbishop of Seville in 600, or 601. He was the great restorer of discipline in the Spanish church, and was also the historian of the Visigoths, and the friend of St. Gregory the Great. He died in 636.

† Medical Botany.



formerly to be an object of agriculture in our own country. The roots are gathered at the end of the second or third year, and, being dried, are packed in bags for the dyers, who grind and prepare them for use.

HENRIETTA.

What is sap green ?

MRS. F.

Sap green is the juice of the unripe berries of the buckthorn, evaporated until it becomes of the consistence of gum. Brown-pink consists of chalk coloured by fustic, and heightened by other preparations.

MARY.

And what is fustic ?

MRS. F.

It is the wood of a species of mulberry (*Morus tinctoria*), which is a native of the West Indies, of Brazil, and other parts of South America, whence it is imported into Europe, to dye yellow.

Indian ink we have spoken of on a former occasion \* : and these comprise all our vegetable pigments, excepting lake, with which our ca-

\* 1st Series, Chap. xi.

talogue properly concludes, as, although some kinds are prepared from madder or Brazil wood, others are made from cochineal or by discharging the colour of scarlet rags. The colouring matter is mixed with a solution of alum, and, when submitted to a chemical preparation, the colour we call lake falls to the bottom of the vessel.\*

## HENRIETTA.

What is Brazil wood?

## MRS. F.

It is the wood of a tree (*Cæsalpinia crista*) which grows in Brazil, the Isle of France, Japan, and other countries. This wood, when first cut, is of a light colour, but turns a dark-red upon exposure to the air. When the Spaniards first found the tree in Brazil, they were struck with the sanguine colour of the wood, and immediately thought it must be that of which the cross had been made, and that it bled at the sacrilege of being wounded.

We will now proceed to the colours which we derive from the animal kingdom, at the head of which, I think, we must place Prussian-blue, although the colouring matter of this pigment is iron. Prussian-blue is made by

\* Brande's Chemistry.

calcining animal substances, such as bones, hoofs, bullock's blood, &c. with pearlash, in a red-hot iron vessel, and pouring water upon the mixture. As you are not chemists, I will not detail to you the gradual additions of alum, sulphate of iron, and muriatic acid necessary to complete the process, and to form the brilliant colour which we call Prussian-blue; a name it derives from having been first discovered at Berlin, in 1710, by Diesbach, a colour maker, who, having thrown several liquids from his laboratory, upon the ground, was surprised to find it tinged with a beautiful blue colour. Recollecting what liquids he had thrown out, Diesbach repeated the experiment, and prepared the colour, which has since gone by the name of Prussian or Berlin blue.

## ESTHER.

How many discoveries have arisen from accident! The idea of ascending the air in a balloon, originated in a singular manner. The wife of Montgolfier, was preparing to cut up a loaf of sugar, and taking off the paper cap from the top, she threw it upon the fire; the smoke and draught operating upon it, carried it through the flue, and caused it to ascend above the top of the chimney. Montgolfier reflected on the incident, and proceeded to make a tissue-paper

bag, and inflated it with smoke, produced from cork-cuttings; this succeeded agreeably to his expectations. He was soon imitated by others, and the science of ballooning rapidly advanced. But to return to our subject. Ivory-black is made from bones or ivory burnt in a close vessel, and may be considered as a variety of animal charcoal.

MRS. F.

Carmine is prepared from the cochineal insect: this and sepia, of which we have before spoken\*, complete the animal substances of our colour box. We will now proceed to the mineral kingdom, which furnishes the most durable and the greatest part of our colours.

ESTHER.

Vermilion is produced from quicksilver, combined with sulphur. Lead affords us several pigments.

HENRIETTA.

Yes, red and white lead.

MRS. F.

In order to obtain red lead of a fine colour, it requires to be manufactured in large quantities.

\* 1st Series, Chap. xi.

HENRIETTA.

And white lead?

MRS. F.

White lead, or ceruse, is prepared by exposing sheet lead to the action of the vapour of vinegar. Naples yellow, and Chrome yellow, are likewise preparations of lead; and so is also flake white, which, like white lead, is a corrosion of this metal, but with this difference, that it is produced by the acid of grapes instead of vinegar.

ESTHER.

Verdigris is a similar preparation to white lead and flake white, being formed by exposing copper to the fumes of vinegar, when it becomes gradually incrustated with the green powder which we call verdigris. At Montpelier, where it is largely manufactured, the acid of grapes is employed.

MRS. F.

Verditer is also produced from copper; and Green Bice, the celebrated Armenian stone of the ancients is, I believe, an earth calcined by copper.

ESTHER.

Iron, as you have before told us, forms an

E 3

important ingredient in Prussian blue; and arsenic, I believe, gives us several colours.

MRS. F.

Yes; Orpiment, so called from *auri pigmentum* (golden pigment), consists of arsenic\*, and forms the basis of King's yellow. They are, therefore, both poisonous, like all preparations of this metal.

ESTHER.

Cobalt comes next.

MRS. F.

The beautiful blue furnished by cobalt is used very extensively as a colouring material in the porcelain, earthenware, and glass manufactures. In our common blue earthenware plates, for instance, the pattern is generally printed with cobalt upon paper. The paper is applied to the plate in a state of biscuit, and the colour adheres to it on the application of heat.

ESTHER.

What is the origin of its name?

MRS. F.

Cobalt signifies in German, an evil spirit

\* Yellow sulphuret of arsenic.

(*chabold*), and has been given to this mineral by the German miners, in consequence of the ill effects to which they are exposed, from the unwholesome vapours of the arsenic which is combined with the cobalt; they imagined that an evil genius resided in the mines of cobalt, and loved to torment them.\*

Zaffre, the cobalt of commerce, is prepared by calcining the ore, and thus expelling the sulphur and arsenic. Smalt is zaffre melted with sand and potash, when it forms a blue glass†; and smalt pulverised is powder blue, employed so much by our laundresses, and also in the painting of porcelain, and in the colouring of artificial stones. In Germany, where the metal is plentiful, it is also used, when coarsely ground, as sand for drying ink, when writing. Cobalt likewise forms the base of several kinds of sympathetic ink.

ESTHER.

I think, mamma, that we have now enumerated all the metallic colours.

MRS. F.

Then we may proceed to the earthy mi-

\* Haüy, t. iv. p. 217.

† Amsterdam is celebrated for its smalt manufactories; the method employed in the preparation of this article is kept secret.

nerals. Lapis lazuli affords us ultramarine, which is obtained by calcining the stone, and reducing it to an impalpable powder. It is next mixed with a paste composed of wax, linseed oil, and resinous substances, and then washed and dried into the powder called ultramarine. Ultramarine does not change from age; the consequence is, that while the other colours of a painting lose their tone by time and the effects of exposure to light and air, the blue resists their ravages; hence we often see it so prominent in many of the paintings of the old masters, as to destroy the harmony of their colouring. Lapis lazuli is brought principally from Siberia, where it is found in the vicinity of Lake Baikal; but it also comes from Persia, Natolia, and China. The yellow spots and veins in this mineral are composed of iron pyrites.

ESTHER.

I think, mamma, that you have no other colours to notice, excepting some of the earths, such as yellow and Roman ochre, sienna, umber, and Cologne earth.

MRS. F.

Yes; these close our catalogue. UMBER is so called from Umbria, the ancient name of



the duchy of Spoleto, whence this earth was first derived. Cologne earth is prepared from the brown-coal procured at Friesdorf, near Bonn, where it exists in large quantities.\*

## ESTHER.

How durable the colours used by the Egyptians must have been to remain so bright as they are found at present in their tombs !

## MRS. F.

Mr. Wilkinson states them to have been so carefully prepared, that he has been able to form cakes from the broken fragments found in the tombs, which may yet be employed in representing on paper the colour of figures copied from Egyptian ruins, although it must now be three thousand years since they were prepared. The reds and yellows were apparently ochres ; the greens and blues extracted from copper ; the white appears to be a very

\* The stratum here worked is in fact a subterraneous forest, buried at an early period of the world's existence, and now converted into lignite or brown coal. Trunks of large trees are found imbedded in this stratum, which exhibits the wood in all its stages. We found specimens in which its structure is scarcely changed, and others in which it had passed into a bituminous, earthy coal, which, when mixed with water and dried, is used as fuel. The same mines also contain an aluminous earth, which furnishes material for extensive alum works, and also a stratum of fine clay, employed in a pottery adjacent, for making the conical moulds used in refining the beet root sugar.

fine lime reduced to an impalpable powder; the black is lampblack; and the compound colours were formed by combinations of the above. Their paint was mixed with water.

HENRIETTA.

Then it would easily wash off.

MRS. F.

Yes, it therefore would necessarily require some protection against the weather; and we find the Egyptians so attentive in this respect, "that the interstices of the blocks which form the roofs of the temples, independently of their being well fitted together, and cemented with a tenacious and compact mortar, were covered by an additional piece of stone let into a groove of about eight inches in breadth, extending equally on either side of the line of their junction." \*

ESTHER.

Is not Egyptian mummy used as a pigment?

MRS. F.

Yes, it affords a rich brown, which is much esteemed by artists.

\* Wilkinson's Thebes, p. 443.

**HENRIETTA.**

How much I should like to see a mummy !

**MRS. F.**

A mummy may be said to comprise a complete epitome of the arts of the Egyptians, all of which were called in requisition for its preparation. The arts of weaving and dying, of founding, working, and colouring glass and metals, of engraving upon fine stones, of painting and carving wood, of gilding, varnishing, and enamelling; the arts of preparing resins, perfumes, &c.; in short, many arts which we have yet to recover, as they are entirely lost to the moderns.

**ESTHER.**

I have heard that a mummy has above a thousand ells of bandages rolled round it, some of flax, some of cotton, and some even of silk.\*

**MRS. F.**

The discoveries of Rossellini, now in the course of publication, exhibit a most wonderful picture of Egyptian trades and manufactures. In the drawings which he has copied from the tombs, we see represented the whole process of

\* Pariset, Memoire sur la Peste.

the silk and cotton manufactures ; the shop of an Egyptian upholsterer of between 3000 or 4000 years ago, from which we learn that the Egyptians of that age sat in chairs as we do, instead of reclining at their repasts in the effeminate, recumbent position adopted by the Romans. We also find furniture of most elegant designs, under the progressive operations of cutting, turning, veneering, polishing, gilding, and adorning with stuffed silken cushions. From the goldsmith's shop, we learn, that gold and silver plate, knives, spoons, tureens, banqueting cups, &c. were worked as exquisitely by the Theban goldsmiths as by ours. The minute delicacy of their cameos and intaglios could only have been effected by means of the microscope ; the art of causing figures to move by clockwork, they appear also to have understood ; and they were familiar with the use of the syphon and the arch. The art of hardening copper instruments of war, and iron and steel for the purpose of cutting inscriptions upon the granite, is now lost ; nor is modern mechanical knowledge adequate to raise the enormous masses of masonry used in their buildings.

#### ESTHER.

But how came the Egyptians to be so wonderfully advanced in knowledge ?

## MRS. F.

The physical position of Egypt was peculiarly favourable to the cultivation of the sciences. Their rich soil required little cultivation; and the two months during which the waters of the Nile covered the country, afforded a period of repose well calculated for study and meditation. As Egypt could not exist without canals, the cultivation of those sciences were necessary which relate to their construction. To determine the boundaries of property after the periodical inundations, the sciences of mensuration and geometry were requisite; and as it was equally important to calculate the exact period of their return, the Egyptians were led to the observation of the stars, and their clear sky was favourable to the progress of astronomy. Egypt abounded in mines of granite; and the working of these mines led to mineralogy, while the mode of conveying these enormous masses to the Nile required a knowledge of mechanics; and the practice of embalming, and of preserving living specimens of animals in their temples, forwarded the study of natural history.

## ESTHER.

Then it is no wonder that the Grecian sages visited Egypt. Thales, I believe, went first, then

followed Pythagoras, and successively of almost all the sages of Greece.

FREDERICK.

What did they learn from the Egyptians?

MRS. F.

Most of the sciences which I have enumerated, as hydraulics, mechanics, architecture. In astronomy, the Egyptians had successively passed from the lunar to the solar year, until they had brought it to 365 days and a quarter. Geology was far advanced, for they knew that the earth had come out of the water. The Grecian sages would also receive instruction in mineralogy; for, independently of the granite quarries, the Egyptians had discovered emerald mines between Egypt and the Red Sea. In chemistry they were far advanced, for they had applied it to the arts and manufactures: it was a science much cultivated among the Egyptians, and its European name recalls its origin.

HENRIETTA.

How?

MRS. F.

The word chemistry comes from *chim*, which is

the Coptic name for Egypt. \* In addition to the sciences we have already enumerated, we must not omit medicine, which had its birth in this country; and if a prince required a physician, it was to Egypt that he applied. Such was the ancient state of science among these wonderful people, but intestine divisions and foreign conquest caused its decline; and, under the dominion of the Romans, they had fallen into a state of ignorance which may be regarded as a just punishment for the secrecy with which they persisted in keeping their knowledge locked up.

ESTHER.

How interesting would be an account of the progress of science among the Egyptians!

MRS. F.

It would; but no written works of the ancient Egyptians have descended to us. The Egyptian priests appear to have entertained the same antipathy to history as have the Bramins, and probably for the same reason, viz. to retain their power.

ESTHER.

The modern Bramins assign as a reason for

\* Cuvier, in the Reports of his last Lectures, from which source most of the above observations are derived.

refusing to write the history of their country, that the degenerate and wretched age in which they live is not worthy of being preserved in remembrance.

MRS. F.

All that has been transmitted to us of Egyptian history, is a list of some of their kings; but, in the absence of books, their monuments now supply us with a chronology of the ancient monarchs.

ESTHER.

How strange that so many monuments should remain in such a high state of preservation !

MRS. F.

Not altogether ; as the causes which have enabled them to resist the ravages of time are evident. The granite of which they are built is most durable in its nature ; and the climate of Egypt, where it never rains\* ( "Egypt's showerless lands" ), is peculiarly adapted for their preservation. The dates of the principal monuments in Egypt may be placed between the years B. C. 1200 and 600.

\* The prophet Zechariah (chap. xiv. verse 18.) speaks of the family of Egypt, "that have no rain."



## ESTHER.

What an immense number of monuments to have been erected in so short a period !

## MRS. F.

It must be recollected that Egypt is a long narrow valley, surrounded by deserts, and consequently incapable of extension. By its situation, it was the passage of communication between every part of the civilised world, and therefore could not fail of becoming rich and prosperous. How were the Egyptians to employ these riches ? they had no use to which to apply them but the erection of public buildings and monuments ; and such we find was the case in a parallel country, viz. Palmyra, which is an oasis in the midst of a desert. The springs with which it is supplied rendered Palmyra a place of passage for the caravans. Hence its riches, which its inhabitants employed, like the Egyptians, in the accumulation of a number of monuments, even more astonishing than those of ancient Egypt. Modern history, also, affords us a similar instance, in the case of Genoa, which, limited in extent by the Apennines, reared, during the period of its prosperity, that multitude of marble palaces which excite the admiration of the traveller. \*

Cuvier.

ESTHER.

Pray, mamma, what is the Rosetta stone, which I hear so often mentioned?

MRS. F.

It is a stone which was discovered by the French at Rosetta, and was shortly after brought to this country. Upon it is an inscription in three characters, the Greek, Hieroglyphic, and the Enchorial, or native character of Egypt. Dr. Young succeeded in deciphering some of the hieroglyphic letters, and by his exertions, and the previous labours of two learned foreigners, the first insight was obtained into the hieroglyphic language, which Champollion and others have since so successfully prosecuted.

ESTHER.

How did Dr. Young proceed in his investigation?

MRS. F.

Observing that in the hieroglyphic inscription, there were occasionally a certain number of characters enclosed in a kind of oval, he discovered that these ovals occurred in the places where, in the Greek inscription, proper names were to be read, and by comparing these

characters with similar ones, in the other ovals, he came to the conclusion, that these hieroglyphics represented letters. Thus he would find that the same sign stood for the letter P in the name of Ptolemy, as in that of Cleopatra; that the same hieroglyphic formed the third character in the oval of Berenice, as that which stood last but one in the name of Cleopatra; whence he inferred that the hieroglyphic in question represented, in both names, the letter R. Thus did he gradually and cautiously proceed, until he had deciphered sufficient signs to lay the foundation of a hieroglyphic alphabet.

HENRIETTA.

Then hieroglyphics are only the same as the letters of our alphabet.

MRS. F.

The hieroglyphic writing consists of three kinds: —

1st, *Alphabetic* (or *Phonetic*, as it is called), when the hieroglyphic symbol stands for a sound or letter, like our alphabet.

2d, *Emblematic*; that is, when the hieroglyphic is an emblem or symbol of the thing represented, as if we were to draw a peacock, as a representation of Juno; an owl, instead of the word Minerva, and so forth.

*3d, Figurative*; that is, when the hieroglyphic is a representation of the thing itself, as if we were to draw a house instead of writing the word house, or were to substitute the figure of a crown for the word, &c.

ESTHER.

Had the Egyptians more than one symbol for each letter?

MRS. F.

Yes, generally several; consisting of objects, the initial letter of which, in the Egyptian language, was the same as the letter to be represented.

HENRIETTA.

As if we were to draw a hippopotamus, a horse, or a house, for the letter H; a cow, a cradle, or a cat, for the letter C.

MRS. F.

Exactly so. Now if Esther were to write her name in hieroglyphics, she might have an eagle, an egg, an elephant, or an eye for E.

MARY.

Then for S there would be a swan, a shell, a sheep, &c.

FREDERICK.

A tiger, a tortoise, a thistle, or a turkey,

might stand for T. For H, Henrietta has already given us some signs; E we have had before; and for R she should choose between between a ring, a rhinoceros, a rabbit, and a rose. Now, Esther, we have completed your name.\*

ESTHER.

What was the language of the ancient Egyptians?

MRS. F.

Coptic; and the discovery of this lost language opens a vast field of inquiry, and fills up many chasms in the history of Egypt.

ESTHER.

Is it true that the kings of Egypt who are recorded in the Bible are portrayed in the paintings found by Rossellini and Mr. Wilkinson on the Egyptian monuments?

\* It has not been thought necessary to enter into the omission of the vowels, or any of the other details of the construction of the hieroglyphic writing. The Egyptians had three modes of writing their language: — The Hieroglyphic: — The Hieratic, which, like the first, was confined to the priests, and which appears to have been a simple imitation of the hieroglyphic; in fact, a kind of short-hand, or quick way of writing it. — The Enchorial, or native character of the country, which appears to have been gradually derived from the other two, and by comparing them together, seems to be a kind of loose imitation of them.

MRS. F.

Yes; Pharaoh Necho, Hophra, and Shishak, are all to be seen; and the Jews themselves are clearly exhibited. The profiles of the figures in the monuments strikingly resemble those of the modern Jews; they have either hats or their black bushy hair, turned round by a red fillet. They wear sandals, the military petticoat, a baldric across one shoulder, a girdle to which is attached a short sword, and, when represented as engaged in warlike operations, they have the upper part of the body covered with a defensive coat, either of leather or of armour, and wearing over the whole a tippet, like the cape of a modern great coat. Under the kings of Egypt, contemporary with Moses, these Jews are represented as employed in the very act of slavery which Scripture describes, namely, making bricks. An Egyptian taskmaster superintends the work; and the bricks, according to their delineation, are precisely those which are found in walls constructed of bricks, the date of which is assignable to the era in question. Many more illustrations of Biblical record are afforded in the pictures given by Rossellini; and as the science gradually advances, more will be collected. The labours of Rossellini, and of our zealous countryman,

**Mr. Wilkinson, are rapidly adding to our knowledge, and such a mass of facts is accumulating, as will enable us soon to construct a new history of the Egyptians, their chronology, their arts, their sciences, and manufactures.**

## CHAPTER V.

## EXTINCT ANIMALS OF GREAT BRITAIN.

THE BEAVER FORMERLY A NATIVE OF GREAT BRITAIN. — HER-  
 VERLEY. — THE BEAVER PROTECTED BY LAW. — SKINS OF  
 THE BEAVER AND THE MUSQUASH. — EXTINCT ANIMALS OF  
 GREAT BRITAIN. — WOLVES, WHEN EXTIRPATED. — WOLVES  
 OF NORTH AMERICA. — THE BEARS OF GREAT BRITAIN. —  
 OF LAPLAND. — OF VALENTINIAN. — OF BERNE. — WILD  
 BOARS. — WILD CATS. — HORSES OF CASSIBELAUNUS. —  
 WILD CATTLE. — THE COCK OF THE WOOD. — THE DODO. —  
 KANGAROOS AND EMUS. — FEAST OF ARCHBISHOP NEVILLE.  
 — EGRETS. — PORPOISES. — THE PEACOCK. — VOW OF THE  
 PEACOCK. — PEACOCK'S FEATHERS. — THEIR CRESTS. — FEAT-  
 HER MANTLES OF THE SOUTH SEAS. — AMULETS OF THE  
 KINGFISHER. — FEATHERS OF THE LYRE-TAIL PHEASANT. —  
 HUMMING-BIRD MANTLE OF MONTEZUMA. — THE TROCHILUS  
 AND THE CROCODILE. — LEECHES OF CEYLON. — THE LEECH  
 A BAROMETER. — FROST OF 1829. — PEACOCK IN HIS PRIDE.  
 — EXAGGERATION. — ANECDOTE OF PETRARCH. — VERACITY  
 OF INHABITANTS OF PITCAIRN'S ISLAND. — OF THE FINX. —  
 OF ALFRED. — OF DR. JOHNSON.

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“But the book of nature was before Minna, that noblest of  
 volumes, where we are ever called to wonder and admire, even  
 when we cannot understand.”

SIR W. SCOTT.

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## ESTHER.

MAMMA, in reading a tour through Wales, I find  
 that a valley in Caernarvonshire is called Nant  
 Frangon, or the Vale of Beavers. Were  
 these animals ever natives of Great Britain?



MRS. F.

So it appears ; but the value of their fur caused them to become scarce at the close of the ninth century, and in the twelfth, they were only to be met with in one river in Wales, and in another in Scotland. The town of Beverley (*Beaver field*) in Yorkshire takes its name from these animals, and three beavers are borne as the arms of the city.

HENRIETTA.

Is it true, that the beaver uses its tail as a trowel ?

MRS. F.

No ; this, like the story of the glutton enticing the reindeer to the tree where it is concealed, by throwing down the moss, of which the reindeer is fond, proves to be a fable, exploded by our arctic travellers.

ESTHER.

Beavers are found in parts of the Continent, but the European beaver does not erect villages and live in societies, like those of North America, it is generally a solitary animal, and burrows in holes by the side of rivers.

MRS. F.

In the old Scandinavian laws, we find that

the beaver was protected from injury by a legislative enactment. The industrious beaver "hath his house like the husbandman," and if the beaver was killed, and his cell overturned, a fine of three marks was paid to the owner of the land. But the grim inhabitants of the wood were, by the same code, declared to be out of the protection of the law. "The bear and the wolf shall be outlaws in every place," — a phrase which illustrates the Saxon definition of an outlaw — "the bearer of the wolf's head."

ESTHER.

Captain Back informs us that 70,000 skins of the beaver are annually sent to England, but the Musquash or Muskrat (*Fiber zibethicus*) is usually substituted for this fur, and half a million of skins are yearly imported into this country for the hatters.

MRS. F.

And I understand, that the skin of the Pine Martin (*Mustela martes*) is also sent from North America, and sold here as the real sable.

HENRIETTA.

Were there not once many animals in Great Britain which are now extinct?

MRS. F.

Yes; the wolf, the bear, the pig, and several

kinds of birds, were all formerly wild in this country, but are no longer found so.

ESTHER.

Wolves, were at one time, very common in England, as we learn from the tribute of King Edgar.

MRS. F.

But it is an error to suppose that these animals were extirpated in the reign of this monarch; they appear not to have been uncommon in the time of Stephen, as we find by the record of a grant to the monks of the Abbey of Fors, in Wensley Dale, Yorkshire, of pasturage and grass in the adjoining forest, but forbidding them to use any mastiffs to drive away the wolves. The last wolf in Scotland fell by the hand of Sir Ewen Cameron, about the year 1680; but this animal is said to have maintained its ground in Ireland, so late as 1710.

ESTHER.

Dr. Richardson states that the wolves of North America are so timid, that the simple precaution of tying a handkerchief to a branch, or of inflating a bladder and suspending it so as to wave in the wind, is sufficient to keep herds of wolves at a distance.

F 2

MRS. F.

They must be as great cowards as the grisly bear ; a botanist relates, that he found the best way of getting rid of these animals, when they attacked him, was to make a rattling noise with his tin specimen box, upon hearing which they immediately decamped.\*

ESTHER.

The bear was formerly found in Britain. In Wales it used to be regarded as a beast of chase, equal to the hare or the boar, and the last record of one being destroyed, is in 1057, when a Gordon, as a reward for his valour in killing a bear, was directed by the king to wear three bears' heads on his banner.†

MRS. F.

In Dr. Richardson's interesting work upon the animals of North America‡, I was reading, the other day, a most amusing account of the bear, the winter habitation of the animal, and the manner in which it is hunted. He tells us that the Laplanders hold the bear in such ve-

\* See anecdote in Hooker's *Botanical Miscellany*, vol. i. p. 196.

† Pennant's *British Zoology*.

‡ *Fauna Boreali-Americana*.

neration that they never speak of it by its name, but designate it, in conversation, by the epithet of "the old man in the fur cloak."

HENRIETTA.

I should like to read this account.

ESTHER.

Then I will find it for you this evening.

FREDERICK.

The Emperor Valentinian used to keep near his room two enormous pet bears, which he distinguished by the appellations of Innocence and Mica aurea (*Golden crumb*). These ferocious animals were his guards, and their cruel master would frequently indulge himself by witnessing the tortures and death of the wretched victims, whom he caused to be given them to devour. Their diet and exercise were carefully inspected by the emperor himself, and when "Innocence" had earned her discharge by a long course of service, she was again restored to the freedom of her native woods.\*

MRS. F.

When I was at Berne, in Switzerland, I saw the bears which, you may have heard, are kept,

\* Gibbon's *Decline and Fall*, chap. xxv.

at the public expense, in the trenches round the town. A bear is also borne as the arms of the city. But, to return to our British animals.

So late as the reign of Queen Elizabeth, pigs ran wild in Lancashire, in Cumberland, and in the Weald of Kent. Wild boars are mentioned, both in the ancient Welsh and English laws, as beasts of chase, reserved principally for the amusement of the king; and William the Conqueror punished with the loss of eyes, those persons who were convicted of hunting the wild boar without the royal authority. Beside the animals we have already enumerated, we may mention the wild cat, which was reckoned among the beasts of chase, and is still occasionally found in mountainous districts, and also the badger, now almost extirpated. The native horses are celebrated by Cæsar, who gives a most animated description of the dexterity with which they were managed, and deemed them so valuable, that he carried many of them to Rome. They must also have been exceedingly abundant at that period, to judge from the accounts of the numbers which Cassibelaunus had in his army.

FREDERICK.

Are there not still wild cattle in England?

MRS. F.

The race of British wild cattle is still kept at Lord Tankerville's at Chillingham in Northumberland, and also at the Duke of Hamilton's; they are quite wild, and when one is to be killed, it is shot with a rifle.

FREDERICK.

What colour are they?

MRS. F.

They are of a cream colour with red ears, not unlike, I believe, the cattle that we see in Italy.

ESTHER.

There are also a great many British birds which are now extinct.

FREDERICK.

Yes: the cock of the wood, for instance; I believe it has not been shot for many years, but I have often seen them in the shops in London. They are brought from Norway. What a magnificent bird it is; but it must be very easy to shoot, it is so large.

MRS. F.

Not so easy as you imagine, Frederick, for the cock of the wood or capercailie is so extremely

shy, that it requires some address to get within shot of it. I have heard the shooting of this bird in Bavaria described. The sportsmen go into the wood at night, and gently steal towards its haunts, which are the tops of the highest pines. In the grey of the morning, the cock of the wood begins to crow, and, in the act of crowing, shuts its eyes; this is the moment seized by the sportsman to creep towards it, for the bird is easily alarmed at the slightest movement, and flies off if approached at any time but when it is crowing, and consequently off its guard.

ESTHER.

Talking of extinct birds reminds me that, when I was at the British Museum, I saw the picture of the Dodo.

MRS. F.

The most striking instance of extirpation, occurs in this remarkable bird, of which a foot and a head at Oxford, and a leg, with the painting to which you allude, in the British Museum, are all that remain to attest its existence. The Dodo (*Didus ineptus*) is first mentioned as having been seen by the Dutch when they landed on the Isle of France, which was then uninhabited. The bird, as it appears by the accounts and from the portrait preserved of it, was a large, heavy, stupid animal, with



short wings incapable of flight, and so fat that it could hardly walk ; it was therefore, soon extirpated, owing to the facility with which it was taken. From the representation given of the Dodo, it was larger than a turkey-cock, and is stated to have weighed from forty-five to fifty pounds.

ESTHER.

I have read that the Kangaroo is not so common as it used to be in New Holland.

MRS. F.

No ; the kangaroo and the emu, are gradually retreating into the interior of Australia, and the general cultivation of that country will probably soon lead to the extirpation of both ; but we have made a great digression from our original subject — the extinct birds of Great Britain. The crane is now become rare, the bustard has disappeared, and the egret is but a rare visitant.

ESTHER.

I think the egret must have been destroyed in consequence of the numbers which were eaten at feasts. In the celebrated entertainment given by Neville, Archbishop of York, at his installation\*, we find that a thousand

\* 1470.

egrets were among the dishes served up to the guests.

HENRIETTA.

What a pity! the egret is such a beautiful bird; but why is it so called?

MRS. F.

Egret comes from the French *aigrette*, a name given to these birds, says a French writer, "à cause de l'aigreur de leur voix."

ESTHER.

In the same feast, there are a great many other curious animals mentioned.

HENRIETTA.

I hope, Esther, you are not going to give us the bill of fare.

ESTHER.

No, Henrietta, because I am aware that you have often read it; but, nevertheless, it is interesting and curious, as showing us what animals were then eaten as food.

MRS. F.

Among other things, we find eight seals and four porpoises.

HENRIETTA.

Delicate appetites they must have had in those days !

MRS. F.

The porpoise appears on another even more curious occasion, and that is in 1390, when a roasted porpoise, boiled in broth, and a dolphin were served up by way of refreshments at a ball.

ESTHER.

What is the derivation of the word porpoise ?

MRS. F.

It is a corruption of the Latin *porcus piscis* or hogfish ; a name by which it is also designated in other languages. The French *marsouin* and the German *meerschwein* have both the same signification. But to return to Neville's feast : we find in the bill of fare, a hundred curlews, and two hundred and four bitterns, two hundred cranes, and no less than a hundred peacocks.

HENRIETTA.

What a slaughter of these beautiful birds ! I wonder who first thought of eating the peacock.

MRS. F.

The idea is attributed to Hortensius, a Roman, and it soon became so fashionable a dish, that all people of fortune had it at their tables. The peacock was first made known to Europe by the wars of Alexander, and the estimation in which this bird and the pheasant were held, was transmitted by the Greeks and Romans, to their Gothic conquerors and their descendants. Knights vowed by the peacock, or *powin*, as it was also called. Peacocks and pheasants were deemed their peculiar food; and whenever the vow of the peacock or pheasant was made, it was attended with solemn ceremonies. The bird was brought into the assembly by ladies, on a gold or silver dish; it was served up with the feathers on, and he was regarded as honoured, in no common degree, to whom was assigned the post of carving and distributing the bird at great entertainments.

HENRIETTA.

How could the bird be roasted in its feathers, aunt?

MRS. F.

Esther, give me the first volume of Mills's "History of Chivalry," and I will read the

account which he extracts from a French author\* : —

“ Instead of plucking the bird, skin it carefully, so as not to damage the feathers, then cut off the feet, stuff the body with spices and sweet herbs, roll a cloth round the head, and then spit your bird. Sprinkle the cloth all the time it is roasting to preserve its crest. When it is roasted, tie the feet on again, remove the cloth, set up the crest, replace the skin, spread out the tail, and so serve it up. Some people, instead of serving the bird up in feathers, carry their magnificence so far as to cover the peacock with leaf gold. Others have a very pleasant way of regaling their guests. Just before they serve up, they cram the beak of their peacock with wool, and the bird instantly vomits out flames like a little volcano.”

#### ESTHER.

Our ancestors delighted in “ a merrie conceite” at their feasts; and, among other directions in their books, how to surprise and amuse the guests, we find instructions to serve two pies, the one filled carefully with live frogs, and the other with live birds. On lifting the lid of these pies, the frogs were to hop out, and make

\* Le Grand. *Histoire de la Vie Privée des François.*

“the ladies to skip and shriek;” and the birds being liberated, were to fly at the candles, extinguish the light, and thereby “cause much delight and pleasure to the whole company.”

HENRIETTA.

Then our nursery song of the—

“Five and twenty blackbirds baked in a pie;  
When the pie was opened the birds began to sing,  
What a dainty dish was this to set before the king.”

relates to the amusements of our forefathers.

MRS. F.

Undoubtedly. So constantly was the peacock, as the object of their solemn vow, kept in the recollection of the knights of chivalry, that for this purpose, the image of the bird was hung up in the place where they exercised themselves in the management of their horses and weapons.

HENRIETTA.

I am surprised that the peacock's feathers are not used as ornaments; they are so beautiful.

MRS. F.

They were used so formerly.\* The feathers

\* Tavernier describes the peacock throne of the Great Mogul to be most gorgeous.

of the peacock, arranged in the form of the tail of the bird, was a favourite decoration of the rooms of the middle ages; and the feathers of the peacock and the ostrich were not only used by the ladies for fans, but the tail feathers also formed crowns with which were decorated their favourite troubadour. Peacocks' crests were among the ornaments of the kings of England\*, and a mantle embroidered with peacocks' feathers, was sent by pope Paul III. as a present to Pepin.† Do you recollect Wilson's description of a dress of peacocks' feathers, in his *Isle of Palms*? —

“Of peacocks' plumes her glancing tire,  
All bright with tiny suns,  
And the gleamings of the feathery gold,  
That play along each wavy fold  
Of her mantle as she runs.”

FREDERICK.

I have seen the feather mantles from the South Sea Islands which were brought to England by Captain Cook.

MRS. F.

They are made from three kinds of birds, two of which belong to the *Nectarinia* (*N. niger* and *Byronensis*) or honey-suckers, a genus nearly allied to the humming-bird.‡

\* Pennant.

† Mills's *History of Chivalry*.

‡ The other bird is *Drepanis vestiarius*.

## ESTHER.

The Ostiacks, a Siberian tribe, make of the skin, beak, and claws of the kingfisher, an amulet against misfortune; and in the South Seas, this bird is held in equal veneration.\*

## MRS. F.

The aborigines of New Holland, in addition to the feathers of the emu, decorate their



THE LYRE-TAILED PHEASANT.

greasy locks with the splendid and picturesque feathers of the lyre-tail pheasant (*Menura* s-

\* Dictionnaire des Sciences Naturelles.



*perba*, Latham), of which I showed you a stuffed specimen the other day. This curious bird is fast decreasing in New Holland; it is swift of foot, but heavy in flight, and seldom flies into trees except to roost.\*

HENRIETTA.

The humming bird's feathers would make a splendid dress, I should think.

MRS. F.

They were used for the mantle of Montezuma; and the Indian ladies wear the humming bird as an ornament in their ears.†

ESTHER.

What is the food of the humming-bird?

MRS. F.

The saccharine juices of flowers, and small insects. These birds are found in summer as far north as Hudson's Bay and Canada. Their Indian name signifies "beams or locks of the sun," — a very appropriate designation for these glittering little creatures.‡

ESTHER.

What is the story, mamma, about the trochilus or humming-bird entering into the jaws

\* Bennett's Wanderings in New South Wales. The tail of the *Menura*, is thirteen inches long; the whole length of the bird being thirty-one inches.

† Bullock's Mexico.

‡ Ibid.

of the crocodile to extract the leeches in its throat?

MRS. F.

The anecdote is related by Herodotus, and is firmly believed in Java.

FREDERICK.

I never heard of it, aunt.

MRS. F.

Herodotus states \* that the crocodile's throat is always full of leeches, and that all the birds and beasts avoid the crocodile except the trochilus, which, from a sense of gratitude, it treats with kindness. When the crocodile leaves the water, it reclines itself upon the sand, and generally towards the west, with its mouth open, the trochilus entering its throat destroys the leeches, in acknowledgment for which service, the crocodile never does the trochilus injury. Such is the statement of Herodotus; but to what genus belongs

"The bold bird upon the banks of Nile,  
That picks the teeth of the dire crocodile," †

is a question which has been much disputed.

\* Euterpe.

† Young.

ESTHER.

I have read that leeches infest the alligator.

MRS. F.

Yes; and the bird called the Green Tody (*Todus viridis*) is related to perform the office of extracting for the alligators of the West Indies the gnats and flies which adhere to their glutinous mouths. In this case we know which is the

“Puny bird that dares with teasing hum  
Within the crocodile's stretch'd jaws to come.”\*

but, with regard to the Egyptian crocodile, some assign the office to the lapwing, others to the Egyptian plover, and Mr. Madox states having often seen a bird about the size of a dove which tradition reports to be in the habit of entering the mouth of the crocodile, when basking in the sun on a sand-bank; and that, having finished its work, the crocodile permits it to fly away. Thus it appears that some bird does perform the office, and that the statement of Herodotus is founded on truth.

ESTHER.

Talking of leeches reminds me of an account I have been lately reading of the terrestrial

\* Moore.

leeches of Ceylon, which appear to be the pest of the island. They infest swampy grounds and woods, especially in rainy seasons, and are more often to be found upon leaves and stones than in the water. They easily penetrate through the light clothing worn in that climate, and it is impossible, in rainy seasons, to escape them when riding in the woods. Fifty will attack one person, and no sooner does an individual stop than, as if they had seen or scented him from afar, they crowd towards him from every quarter. The Dutch lost several men from the wounds of these animals in their march across the island, and horses are perfectly unmanageable when traversing the woods in which they are found.

MRS. F.

What formidable animals they must be !

ESTHER.

Mrs. Clifford keeps a leech in a glass as a barometer, and she tells me that she finds it an excellent guide to show her the changes of the weather.

FREDERICK.

How does she manage it ?

ESTHER.

She confines a leech in a large phial three parts filled with rain-water which is changed

twice a week. In fair and frosty weather, the leech lies motionless, curled up at the bottom of the bottle, but prior to rain or snow, it creeps up to the top, where, if the rain be heavy and of some continuance, it remains a considerable time; if trifling, it quickly descends. Should the wet weather be accompanied with wind, it darts about its habitation with great celerity, and seldom ceases until it begins to blow hard. If a storm of thunder or lightning be approaching, it becomes exceedingly agitated, and moves in convulsive starts at the top of the glass. It is remarkable that although neither the sky nor the barometer indicate any change of weather, yet if the leech changes its position and moves in a desultory manner about the phial, so surely will the weather change within less than six and thirty hours.

MRS. F.

The motions of the leech chiefly depend on the fall and duration of the wet, and on the strength of the wind. They are not generally susceptible of extremes of temperature, although in the celebrated frost of January, 1829, all the leeches of our apothecary were, he told me, frozen to death.

ESTHER.

That was the same severe frost which killed all the gold and silver fishes in the stone basin

in the flower garden; the poor little things were frozen quite fast in the ice, and looked when the gardener dug them out, just like fruit in jelly, for I know nothing to which I can better compare them.

MRS. F.

It was certainly one of the severest frosts we have had in our country for many years.

ESTHER.

Henrietta, we have wandered so far from the subject, that it is hardly worth referring to it again, but, when we were talking of peacocks, I forgot to ask you if you knew what a peacock, when represented with his tail spread, is termed in heraldry?

HENRIETTA.

What is it, Esther?

ESTHER.

It is called, "a peacock in its pride."

MRS. F.

And the pelican when in its nest feeding its young, is termed "a pelican in its piety." The inhabitants of Upper Egypt, call the pelican, the "water camel\*"; it was a favourite bird of

\* Sonnini.

the ancients, and was as much venerated by them as the emblem of maternal affection, as was the stork, the representative of filial piety.

HENRIETTA.

Aunt, I wish you would have the kindness to give us an account of the stork, for I often hear of its wonderful qualities, but know nothing about them.

MRS. F.

With pleasure, Henrietta, but not this morning, for we must begin our studies. I intend that you shall all read some poetry, as I am anxious to improve your style of reading. What shall it be, Esth r ?

ESTHER.

Suppose we select Shakspeare's Julius C sar.

HENRIETTA.

Oh ! I have read that hundreds of times, and know all the speeches by heart.

MRS. F.

Gently, Henrietta ; how can you say that which is so untrue ?

HENRIETTA.

I only exaggerated a little, aunt.

MRS. F.

But, supposing it to be but a little, why exaggerate at all?

HENRIETTA.

Oh, I did not see much harm in it. I am sure I would never tell a direct falsehood.

MRS. F.

And, what then, do you call this? Believe me, Henrietta, there are no such nice gradations as you would wish to intimate. Either we say what is true or what is false, and any thing said with an intention to deceive must be a falsehood, be the motive for asserting it what it may.

HENRIETTA.

Well, aunt, I never thought so seriously of exaggeration before.

“Mamma,” said Esther, who with her usual kindness, endeavoured to turn the subject from the offence, “I was reading yesterday an anecdote of Petrarch, which shows how celebrated he was for his sincerity. A disturbance having taken place in the family of Cardinal Colonna, in



whose house Petrarch was then staying, the Cardinal required that every one present should swear upon the Bible to reveal all they knew respecting it. When Petrarch came forward to tender his oath, the Cardinal said, 'No, Petrarch, your *word* is sufficient.'"\*

## MRS. F.

And what guileless simplicity and virtue reigns among the people descended from the mutineers of the "Bounty," now residing in Pitcairn's Island. Capt. Beechey says, "they are so accustomed to take what is said, in its literal meaning, that irony was always considered a falsehood, in spite of explanation. They could not see the propriety of uttering what was not strictly true for any purpose whatever." And Mr. Laing, in his Travels in Norway†, bears a like testimony to the veracity of the Finlanders; he says it is proverbial in Norway, that "a Fin never says what is not true, and never takes what is not his own." Would, indeed, that such an inflexible regard to truth were more universal! but, unfortunately, falsehood is so common, as to cause the names of those who have been remarkable for their sincerity to be recorded in history. Xenocrates was celebrated for his love of truth;

\* Dobson's Life of Petrarch.

† p. 417.

so was our English monarch, "the truth teller," whom a modern poet designates, as

"—— the King that ne'er betray'd his word,  
Alfred, the teller of the truth."\*

FREDERICK.

And I recollect that, in Cornelius Nepos, it is mentioned of Cicero's friend Atticus†, that he "never deviated from the truth, nor would associate with any one who had done so."

MRS. F.

The motto of Tamerlane was, "I am sincere and plain." Let that also be yours, Henrietta; and never let the love of telling a good story betray you beyond the bounds of veracity. I am much of the opinion of Dr. Johnson (than whom a more scrupulously exact person never lived), that "it is more from carelessness about truth, than from intentional lying, that there is so much falsehood in the world."‡ Let us, then, be watchful of the slightest beginnings of evil, for there is no knowing to what habits of insincerity the first deviation from truth may lead. As Sir Walter Scott happily expresses it: —

"Oh, what a tangled web we weave,  
When first we practise to deceive."

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\* Collingwood's Alfred, b. ix.

† Titus Pomponius, surnamed "Atticus," from his critical knowledge of the Greek language.

‡ Boswell's Life.

## CHAPTER VI.

## THE STORK.

THE STORK.—ITS FOOD.—CAUSE OF ITS VENERATION IN EGYPT.—IN THESSALY.—ROMANS REFUSE THE PRETORSHIP TO ITS DESTROYER.—STORK'S NEST ON THE TEMPLE OF CONCORD.—STORKS AT CONSTANTINOPLE.—BOURNABAT.—HOSPITAL FOR STORKS AT FEL.—STORKS AT PERSEPOLIS, IN DENMARK, FRANCE, AND HOLLAND.—MIGRATION OF THE STORK.—ITS VOICE.—MILTON AND THOMSON'S DESCRIPTIONS.—SUPERSTITIONS RESPECTING THE STORK.—THE STORK OF AQUILEIA.—STORKS AT THE SIEGE OF VIENNA.—MATERNAL AFFECTION.—THE STORK OF DELFT.—ITS FILLIAL PIETY.—DERIVATION OF ITS APPELLATION.—GIVES THE NAME TO A GREEK LAW.—QUOTATION FROM BEAUMONT.—STORK AND STARKIE.—CANTING ARMS.

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Who bid the stork, Columbus-like, explore  
 Heavens not his own, and worlds unknown before?  
 Who calls the council? — states the certain day?  
 Who forms the phalanx, and who points the way?

POPE.

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## HENRIETTA.

If you are at leisure this afternoon, aunt,  
 will you have the kindness to give us your  
 promised account of the stork?

## MRS. F.

With pleasure. The white stork has long  
 been celebrated for its familiarity with man, and

has become, in consequence, the object of his affection and veneration. In all ages, it has been regarded with peculiar favour, partly on account of its services in the destruction of noxious reptiles, partly in consequence of its mild disposition, its harmless habits, and the moral qualities with which mankind has loved to invest it.

HENRIETTA.

What is the food of the stork?

MRS. F.

Lizards, snakes, mice, moles, insects, and frogs; toads, it is asserted, it will never touch.\* The abundance of these animals in a marshy country like Egypt readily accounts for the veneration entertained towards their destroyer; and we consequently find that the reverence paid to the stork by the Egyptians was inferior only to that which they bestowed upon the ibis. This veneration has been perpetuated in the East, and has extended to the different countries of Europe.

HENRIETTA.

Did the Greeks and Romans revere the stork?

\* Linnaeus.

MRS. F.

Yes; in Thessaly, the person who killed a stork was punished by death. The Romans never ate these birds, and they built their nests in safety, until the time of Augustus, when one of the candidates for the pretorship entertained the people with a dish of storks. But the people revenged the death of the poor birds, by refusing the pretorship to their murderer. In the midst of the noise and bustle of the Imperial City, a stork built its nest on the Temple of Concord, and, instead of disturbing the bird in its position, the circumstance was considered so remarkable, that it was perpetuated in the medals of Adrian.

ESTHER.

The Mahommedans equally revere this bird.

MRS. F.

Yes: they deem it sacrilegious to put one to death; and Lady Mary Montague informs us that, in Constantinople, the storks are suffered to build in the streets; and the Turk who owns a house which a stork has selected for its nest, is supposed to be the object of peculiar favour and prosperity. Mr. Hobhouse, in his "Travels in Albania," describes a village (Bournabat) which contains an open space, surrounded by a few shops and shaded by large and aged cedar trees,

whose branches are hung with storks' nests. These birds were stalking about on the flat roofs of the houses, and even in the streets, perfectly unmolested. Such, indeed, is their attachment to the habitation of man, that Mr. Hobhouse says, he does not recollect ever having seen their nests in any tree at a distance from some human dwelling. They build even in the tops of mosques and uninhabited houses.

ESTHER.

Storks always return to the same place, and rebuild their nests, if they have been destroyed. They are welcomed on their arrival with the greatest joy, and the stork itself is said to manifest equal delight on returning to its old habitation.

MRS. F.

In Ali Bey's Travels, it is mentioned, that in Fez a richly endowed lunatic asylum is maintained out of funds originally bequeathed "for the purpose of assisting and nursing sick cranes and storks, and of burying them when dead."

HENRIETTA.

How very curious !

MRS. F.

The stork builds, as you know, principally

upon houses, churches, and old buildings. In the ruins of Persepolis, almost every pillar is said to be surmounted by a stork's nest. \*

ESTHER.

In many countries of modern Europe, the stork is held sacred.

MRS. F.

Yes ; in Denmark, it is protected from molestation. In Spain, particularly at Seville, these birds build on the towers of the churches ; in France, wheels used to be placed upon the top of the chimneys, for the stork to construct its nest upon, a practice which is still continued in many countries ; but, I think, you can all of you tell me the European nation by whom the stork is held in the highest veneration. — “ The Dutch,” replied the whole party at once.

MRS. F.

The protection which the storks receive in Holland is but a fair return for the services they confer upon the inhabitants, by devouring the immense quantities of reptiles which swarm in their fertile and marshy soil. They build in the towers, in their trees, in their chimneys, and are not only never disturbed, but are even invited

\* Chardin.

to settle: an old cart-wheel, or some other contrivance, is sometimes placed upon a new house expressly to induce them to come. The arms of the Hague are a stork; and numbers of these birds may be seen walking about the fish-market of this city, where a small house, like a dog's kennel, has been built for them. Flocks of storks are seen assembling over the streets to concert measures for their periodical flight. We learn from the prophet Jeremiah \* that "the stork in the heaven knoweth her appointed time;" and these birds are remarked to know precisely, and strictly to keep within a very few days, the appointed period of their arrival and departure. They leave Holland about the middle of August, and return in the month of May.

#### ESTHER.

They are very systematic in their movements, are they not?

#### MRS. F.

Mr. Macgill, in his Travels †, gives an account of their proceedings. He says, that at Bagdad, they begin about the middle of June, "to teach their young ones to fly, and about the end of the month they gradually lengthen their flights,

\* Chap. viii. verse 7.

† In Turkey, Italy, and Russia.



and are seen to go away in the morning early, and not to return until the evening: these excursions they always perform in three or four squadrons or divisions, and in a very regular manner. About the middle of July, they all combine about two hours before sun-set, in three or four divisions; they then soar higher than usual, and make several circuits around the city and the adjacent country. This exercise they repeat daily with such regularity and seeming obedience to their chief who always is single and foremost, that it delights and surprises every beholder. At length," continues Mr. Macgill, "the 25th of July arrived, the day on which they took their final departure for this year. Early in the morning, they all collected and formed themselves into four divisions, and flew, or rather sailed, round the city, very leisurely and not very high; then continued hovering some time near together, as if in consultation; and about eight in the morning, they flew straight away swiftly to the north-west. The storks pay an annual visit to Turkey; they arrive in vast numbers about the middle of March, and always in the night. They arrange their progress very systematically; they send forward their scouts, who make their appearance a day or two before the grand army, and then return to give in their report; after

which the whole body advances, and on its passage, leaves during the night its detachments to garrison the different towns and villages on their way. Early in October, they take their departure in the same manner, so that no one can know from whence they come or whither they go. They are known in the night-time to leave all the villages, and have been seen in the air like immense clouds. They leave none behind but those who, from infirmity or accident, are unable to fly. A person, who, at the season of their departure, was in the habit of coming from the interior, told me, that on his journey the year preceding, he had seen thousands and hundreds of thousands of them near the banks of a river, and that they annually assemble there; and when the general sees that his whole army is collected, he, at a given moment, sets them in motion, having a detachment, no doubt, to bring up the stragglers."

#### ESTHER.

The stork, when it leaves Holland, emigrates to Africa, Egypt, and Palestine. August is the month of its departure.

#### MRS. F.

The ancients imagined that the stork had no tongue, as a peculiar chattering noise made

with its beak is the only sound it utters; and the traveller in his walks amidst the ruins of ancient cities, is often awakened from his reverie by the loud chattering of one of these domestic birds perched on the fragment of a column, or on the shed of the solitary shepherd.

ESTHER.

But when the stork takes their flight, it is in solemn silence.

MRS. F.

Yes; and in Holland they always start with a north wind, in order to facilitate their southern flight. With their heads stretched forwards, their long legs extended behind, and apparently serving as a rudder, the storks take their lofty flight, and, rising immediately into the air, soon disappear from the view. Milton well describes their proceeding: —

“Part loosely wing the region, part, more wise,  
In common, ranged in figure, wedge their way,  
Intelligent of seasons, and set forth  
Their airy caravan, high over seas  
Flying, and over lands, with mutual wing  
Easing their flight.”

ESTHER.

And, Mamma, I recollect Thomson's description.

MRS. F. Then repeat it to us, Esther.

ESTHER.

"The stork assembly meet, for many a day  
Consulting deep and various, ere they take  
Their arduous voyage through the liquid sky,  
And now, their route design'd, their leaders choose."  
Their tribes adjusted, clean'd their vigorous wings,  
And many a circle, many a short essay,  
Wheel'd round and round, in congregation full  
The figured flight ascends, and, riding high  
The aerial billows, mixes with the clouds."

MRS. F.

Among other superstitions, it was thought that storks would never live except in republics; a ridiculous idea, that one is surprised could have been so long entertained in opposition to general experience.

ESTHER.

In augury, the appearance of the stork foretold union and concord.

MRS. F.

And its departure, in times of calamity, was considered the worst of omens. Esther, give me Gibbon, and I will read you an interesting anecdote of the account to which Attila turned this popular belief, when he invaded Italy and besieged Aquileia, with an innumerable host of

barbarians. Unskilled in the methods of conducting a regular siege, three months were consumed without effect, when "the want of provisions and the clamours of his army compelled Attila to relinquish the enterprise, and reluctantly to issue his orders that the troops should strike their tents the next morning, and begin their retreat. As he rode round the walls, pensive, angry, and disappointed, he observed a stork preparing to leave her nest in one of the towers, and to fly, with her infant family, towards the country. He seized, with the ready penetration of a statesman, this trifling incident which chance had offered to superstition; and exclaimed in a loud and cheerful tone, that such a domestic bird, so constantly attached to human society, would never have abandoned her ancient seats, unless those towers had been devoted to impending ruin and solitude. The favourable omen inspired an assurance of victory; the siege was renewed and prosecuted with fresh vigour: a large breach was made in the part of the wall from whence the stork had taken her flight; the Huns mounted to the assault with irresistible fury; and the succeeding generation could scarcely discover the ruins of Aquileia."\*

\* Gibbon, chapter 35.

HENRIETTA.

Thank you for this story.

MRS. F.

I met, in reading the other day, another instance of a favourable omen being derived from the flight of the stork. It occurred during the memorable siege of Vienna by the Turks, in 1683, when the great Sobieski, of whom we were reading in Mrs. Markham's History of Poland, so highly distinguished himself by his valour and moderation. At a time when the inhabitants of Vienna began to despair, the fortunate omen of eight storks flying from the adjacent mountains of Calemberg, and settling upon the city, revived, for many days, the drooping spirits of the besieged.\*

ESTHER.

The stork is a very melancholy-looking bird.

MRS. F.

True; but it is very mild and gentle in its disposition, and has been even known to join children in their games. The stork is almost as proverbial for its love of its offspring, as it is celebrated for its filial piety. Both parents are never absent from the nest at the same

\* Salvandy, *Histoire de Pologne*, tome iii.

time; the mother does not leave its young until they are of an age to defend themselves, and, when they begin to fly, she carries or supports them with her wings, and prefers death to deserting them when in danger.

• ESTHER.

Yes, Mamma, you have often shown me a picture, and related to me the story of the stork of Delft, which, when the town was on fire,\* after having tried in vain to carry off her young, suffered herself to be burnt in the nest with them, rather than leave them alone to their fate.

MRS. F.

We now come to the last and most celebrated characteristic of the stork—its filial piety; and although many of the anecdotes related are perfectly incredible, yet there must be some foundation for a belief so universal in all ages, and among all nations. The people of Tonin-gen in Denmark assert that, at the time of the return of the storks in spring, it is not uncommon to see several of the old birds which are tired and feeble with their long flight, supported at times on the backs of the young; and the peasants speak of it as a certainty,

• In 1536.

that many of the infirm are, when they return to their homes, laid carefully in the old nests, and cherished by the young birds which they had reared with so much care the spring before. The stork is also said to feed its parents when they are old and unable to provide for themselves. In short, endless are the stories related of this bird, many indeed difficult of belief; yet it would appear that mankind have in every age concurred in bearing testimony to the filial piety of the stork. Its very name in Hebrew signifies *mercy* or piety; and the English appellation *stork* is said to be derived from the Greek *storge*, which is often used for natural affection. Indeed the law among the Greeks, obliging children to maintain their parents when in poverty, bears the name of this bird, as high a tribute as could be imagined to its filial devotion.\* As Beaumont says,

“ The stork’s an emblem of true piety ;  
Because, where age has seized and made his dam  
Unfit for flight, the grateful young one takes  
His mother on his back, provides her food,  
Repaying thus her tender care of him,  
Ere he was fit to fly.”

#### ESTHER.

I have seen the stork borne as a crest upon a carriage; but I do not know by whom.

\* See Dictionnaire des Sciences Naturelles, Buffon, &c., for the above account.



MRS. F.

I think it is by a Cheshire family of the name of Starkie.

ESTHER.

Then they have, what is termed, *canting* arms.

HENRIETTA.

And what are they?

MRS. F.

Esther shall tell you another time, Henrietta; for we must now take our walk.

## CHAPTER VII.

## ON HERALDRY.

CANTING ARMS. — HORSE-SHOES OF THE FERRERS. — MANOR  
HELD BY THE SERVICE OF SHOEING THE KING'S PALFREY. —  
MULES OF NERO AND TOPPÆA. — EMBASSY OF LORD HAY. —  
THE GERMAN EAGLE. — PAPAL TIARA. — CARDINAL'S HAT. —  
IRON CROWN OF THE LOMBARDS. — NAPOLEON'S BEES. — RAB-  
BERINI. — STANDARD OF ST. MARTIN. — ORIFLAMME OF ST.  
DENIS. — DANEBROG. — CARROCCIO OF THE ITALIAN REPUBLICS.  
— BATTLE OF THE STANDARD. — ELEPHANT TOWER OF FER-  
DERIC II. — ELEPHANT OF THE CHINESE. — UNION FLAG. —  
ST. GEORGE OF ENGLAND. — ENGLISH TITLES. — SONS OF  
VISCOUNTS. — BLAZON, DERIVATION OF. — ACCOUNT OF DUVAL

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“ Round which was seen on ev’ry side,  
Of birth and heraldry the pride ;  
Old ancestors in order hung,  
And coats of arms between them strung.”

KEATS

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## HENRIETTA.

ESTHER, you kindly promised to tell me this  
morning what *canting* arms are.

## ESTHER.

Arms, whose figures allude to the names or  
professions of the bearer, are so termed in  
heraldry ; such, for instance, are three herrings  
which are borne by a family of the name of  
Herring ; three covered cups by the Butlers ;

three anvils by the Smith family; three kingfishers by the Fishers; an elephant by the Elphinstones; and a frazier, that is, a strawberry plant (*fraisier*) which is borne by the Frazers. I could mention many more instances; but these which occur to me, at the moment, are sufficient to explain my meaning.

HENRIETTA.

Thank you.

MRS. F.

There is one other example of canting arms which I recollect, and that is the six horse-shoes which are still borne in the arms of the Ferrers family, who are descended from William de Ferrers, a Norman, who came over in the train of William the Conqueror, and who is supposed to have been the inspector of the farriers of the army, a class of individuals who derive their appellation from the French *ferrière*, a bag of instruments used in shoeing horses.

FREDERICK.

Did the English shoe their horses before the Conquest?

MRS. F.

It appears that they did, for Welbeck in

Nottinghamshire was held, before that period, by an old Saxon tenant, by the service of "shoeing the king's palfrey on all four feet, and with the king's nails, as oft as the king should lie at his manor of Mansfield; and if he should lame the palfrey, then he should give the king another palfrey of four marks price."

FREDERICK.

Nero's mule wore silver shoes.

MRS. F.

Yes, when he went short journies the mules which drew him were always thus decorated, while those of his wife Poppæa had shoes of gold. But the most modern instance of such foolish extravagance occurs in the splendid embassy of Lord Hay to the French court in 1616, during the reign of James I. Among other acts of waste, we find it recorded, that on his public entry into Paris, he had his horse shod with silver shoes, slightly tacked on; and, whenever he came opposite to the balconies where eminent persons were seated, his horse prancing flung away his shoes, which were immediately scrambled for by the surrounding mob. One of his train then re-shod the horse with fresh shoes, which lasted until Lord Hay came to the next

troop of grandees, when the same ceremony was repeated.

ESTHER.

What useless, ostentatious parade !

HENRIETTA.

Aunt, as we are talking about heraldry this morning, I should like to ask you to explain a few things to me which I do not understand. One is, the reason why the German eagle has two necks ?

MRS. F.

The cause is this : — An eagle displayed, sable, as the heralds term it, is the original banner of Germany ; and, when Romania was added to the empire, the arms of that kingdom being exactly the same, the eagles were united into one body, leaving the two necks, as they are now borne in the German arms.

HENRIETTA.

Thank you ; and now there is another question which I wish to ask. Why is it that the pope wears a triple crown ?

MRS. F.

The triple tiara is supposed to indicate that the pope is sovereign, priest, supreme judge,

and sole legislator among Christians.\* It was Boniface VIII. (1297) who first encircled his cup with a coronet; Benedict II. (1335) added another; and John XXII. (1411) completed the present tiara by adding a third. But can any of you tell me why the cardinals wear a red hat?

ESTHER.

No, mamma.

MRS. F.

It was enacted by Innocent IV. that they should wear a hat of that colour, to signify that they who entered the order ought to be ready to expose themselves, even to the shedding of blood, in defence of ecclesiastical liberty.

ESTHER.

There are seventy cardinals, are there not?

MRS. F.

Yes, they never exceed that number. Of course you know that the pope is elected by the cardinals; but perhaps you are not aware, that it is not necessary to be a cardinal in order to be raised to the papal dignity; the present pope, Gregory XVI., for instance, was only a Carmelite monk when he was elected.

\* Porney's Heraldry.

ESTHER.

Mamma, when you were in Italy, did you see the celebrated iron crown of the Lombards?

MRS. F.

I did: it is preserved in the cathedral of Monza, near Milan; and it is not shown but by a special order. It is inclosed in a cross, which is carried in procession once a year, with great ceremony; but, in the sacristy of the cathedral there is an exact model of the crown, which the visitor can examine more leisurely.

ESTHER.

Is the crown entirely of iron?

MRS. F.

No, this is a common error arising from its usual appellation of "the iron crown." The crown itself is a broad hoop of gold which is about a foot and a half in circumference, ornamented with enamel and precious stones. Within this hoop is an iron circle of about a quarter of an inch in width, said to be made from one of the nails of the cross; and it is from this circle that the crown derives its name. \*

\* The other two nails of the cross are said to be preserved, one in the high altar at Milan, and the other at Rome.

The iron crown was used at the coronation of the Lombard kings, and, from the time that Leo III., crowned Charlemagne, Emperor of the West, it was arranged that the chiefs of the Empire should henceforth receive the golden crown from the hands of the Pope, after having been invested with the silver crown of the kingdom of Germany, at Aix la Chapelle, and the iron crown of the Lombards, at Milan.

ESTHER.

Was not Napoleon invested with the iron crown?

MRS. F.

Yes, but in a different manner from his predecessors. Napoleon placed it himself upon his own head, saying, "Heaven has given it to me, beware who touches it." \*

ESTHER.

What was Napoleon's reason for selecting a bee as his emblem?

MRS. F.

He adopted it in preference to the fleur-de-lys, in imitation of some gold ornaments like bees which were found in the coffin of King Childeric, who was buried in the church of St.

\* "Dieu me l'a donnée, gare à qui la touche."



Brice, at Tournay. These golden bees which were supposed to have studded the robes of Childeric are now deposited in the Bibliothèque du Roi, at Paris. Three bees are borne as the arms of the Barberini family of Rome, of which Pope Urban VIII. was a member, but the bee as borne by Napoleon is an imaginary insect, differing in form from the real one.



NAPOLÉON'S BEE,  
(copied from his coronation robes).

ESTHER.

Is it not at St. Denis that the celebrated French banner called the oriflamme was kept?

MRS. F.

Yes.

ESTHER.

Was it always the standard of the French?

MRS. F.

No; the early Franks painted upon their banners the wild beasts of their native country. Under the second dynasty, every count or governor of a province had his own banner: those of the cavalry, were of silk or velvet, while those of the infantry were made of cloth. Until

the reign of Philip 1st, the national standard of France was the mantle of St. Martin, Archbishop of Tours. \*

ESTHER.

That is the Saint of whom the anecdote is related of his dividing his cloak with a beggar at Amiens. I have often seen paintings on this subject.

MRS. F.

Yes, the anecdote has repeatedly been portrayed, and in the collection of our own sovereign, there is a painting by Rubens, in which St. Martin is represented in armour, and on horseback (for he was then in the Roman cavalry), and with his sword he is cutting off a portion of his cloak.

ESTHER.

Then it is this cloak which formed the French standard?

MRS. F.

That does not clearly appear; some say it was the mantle of the saint, others assert that it was the shroud which covered his tomb, while others again say that it was a standard carried upon a spear, and made from either one or

\* He was born about A. D. 316.

other of the above mentioned materials ; but the point does not merit much discussion. This banner was always carried by the Counts of Anjou. It was Louis le Gros (VI.), who first adopted the oriflamme instead of the standard of St. Martin. The oriflamme was the sacred banner of the abbey of St. Denis, and was made of scarlet silk, hemmed with green, and ornamented with gold stars and fringe. It terminated in three peaks or tails, and was fixed upon a gilt-lance ; hence the name *ori-flamme*. This was the standard of the whole nation and army, from the time of Louis le Gros to Charles VII., but when the king commanded in person, there was also a royal flag, to point out the spot where the monarch was to be found ; this flag was azure, sprinkled with golden fleurs-de-llys \*, upon which a white cross was afterwards quartered. Whether the French were victorious or not, the oriflamme was never captured. It was always deposited in the church of St. Denis, and, whenever the Kings of France went out to battle, they went in state to demand the sacred banner of the Abbot of St. Denis, and confided it to the care of the most valiant knight in the army, who swore to preserve it unstained, and to die rather than abandon it.

\* For the history of the French fleur-de-llys, see Chapter XIV. of 1st series.

Under Charles VII., the white flag became the banner of France, and the oriflamme ceased to be held in veneration; however, it still remained among the treasures of St. Denis, and existed in the sixteenth century; how it disappeared is unknown. A model of it is still to be seen in the cathedral, suspended above the choir, over the relics of St. Denis.

ESTHER.

Had not the Danes a miraculous standard?

MRS. F.

Yes; the Danes used also to have a sacred banner called the *Danebrog*. This standard (which was a white cross upon a field gules,) was said to have fallen from heaven in the reign of Waldemar II.\*, to replace the Danish flag which had been taken in the expedition against the Esthonians. The Danebrog was followed for many centuries with religious and military enthusiasm, and was ultimately lost in the disastrous expedition of John against the Dithmarschers, A. D. 1500.

ESTHER.

Mamma, I met the other day with a reference to the wars of the Guelphs and Ghibelines, in

\* Ascended the Danish throne, A. D. 1202.

Italy, and mention is made, that in one of the engagements the *carroccio* of the Milanese was taken ; what kind of standard was this ?

MRS. F.

It is one that you often find alluded to in the wars of Lombardy, those first struggles made by the people of modern Europe, to maintain their rights against despotism and oppression. The *carroccio* was the great standard car of the state, and appears to have been of Italian invention ; it was introduced by Heribert, Archbishop Milan who, in 1039, waged a successful war against Conrad the Salic, and invented this car which he caused to be adopted at Milan, and all the free cities of Italy soon afterwards followed the example.

ESTHER.

What did the *carroccio* resemble ?

MRS. F.

It was built in imitation of the Jewish ark of the covenant, and consisted of a four-wheeled car painted red, and drawn by four pairs of oxen covered to the feet with trappings of scarlet cloth. In the middle of the car, raised upon an immensely high mast terminated by a golden orb, floated the standard of the community, and beneath it the effigy of our Saviour

extended upon the cross, and appearing to pour benedictions upon the surrounding host. A kind of platform in front of the car was occupied by some of the most valiant soldiers of the army, the appointed guards of the standard; behind was another platform, upon which were placed the musicians, who sounded with their trumpets, the charge and the retreat. A priest daily said mass at an altar in front of the car. The carroccio was the head quarters of the army; the surgeons, the chaplain, the military chest were all there. It was sacred in the eyes of the citizens, and its loss was the greatest ignominy to which a city could be exposed. All the flower of the army, therefore, was chosen for the guard of the sacred car, and all decisive strokes in a battle were generally directed towards it. It is probable that, from its raised platform, orders were given and signals made to the various squadrons and divisions of the army. This singular standard was a part of the military system of the Lombards of that period, and marked at once the rudeness and the wisdom of the tactics which regulated the free militia of Lombardy.

ESTHER.

How was that?

MRS. F.

It was necessary to improve the infantry, and to raise its importance, in order to oppose it to the cavalry of gentlemen of the imperial army; the carroccio contributed to this end; for the infantry obliged to accommodate its movements to that of the carroccio, acquired more regularity, more force, and more confidence in itself; a retreat was made in slower and better order, and flight was so ignominious as to be next to impossible. \*

ESTHER.

This Italian car reminds me of the battle of the Standard, fought at Northallerton, in 1138, when the English carried along with them as their military ensign, a high crucifix which was erected upon a waggon, whence the battle derived its name.

MRS. F.

It certainly was a very singular contrivance; but to return to our subject. When military operations became more skilful and more rapid, it was found that from its slow motion, the carroccio was a complete incumbrance, and Ottone Visconti, another archbishop of Milan,

\* Sismondi, *Républiques Italiennes*, and *Foreign Quarterly Review*, vol. vi.

substituted for it, a standard with the arms of the city and the image of St. Ambrose, the patron saint of Milan; it was intrusted to one of the bravest officers with a large stipend for defending it.

FREDERICK.

It must have been very slow marching, to keep pace with a bullock waggon.

MRS. F.

The Italian bullocks are particularly light and quick in their movements, but as the carroccio was heavily laden, its motion must undoubtedly have been very slow. There were varieties in the carroccio, as adopted by the principal Italian cities, Milan, Pavia, Cremona, and Florence; but the emperor Frederick II., who was wont to distinguish himself by his singularity, instead of the carroccio, introduced an elephant carrying a square wooden tower, at the angles of which were fixed several flags, while, in the midst, floated the great standard of the army. This tower was guarded by his faithful Saracens, whom Esther will recollect, that Frederick caused to be transported from Sicily into the cities of Luceria and Nocera\*,

\* This city still goes by the name of "*Nocera dei pagani*."



which they colonised, and which could supply him in cases of necessity with 30,000 soldiers.

ESTHER.

One would have thought such an invention of Eastern rather than of German origin. A white elephant on a crimson field, is the banner of China, and the emperor, among his various titles, is styled the "Lord of the white elephant."\*

HENRIETTA.

Now that we are talking of banners, why is the English standard called the Union.

MRS. F.

It is so termed because it is formed by the union of the crosses of St. Andrew and St. George, the patron saints of Scotland and England.

FREDERICK.

What is the history of our saint, St. George of England?

MRS. F.

Esther, find me the 23d chapter of Gibbon's Decline and Fall, and we will read his account of this unworthy individual who, after a most ignominious life, was transformed into a saint

\* Gutzlaff's China.

and a martyr, and became the patron of the English nation."

Mrs. Fortescue referred to the passage, and Esther read to our party the history given by Gibbon of St. George of Cappadocia or of England:

FREDERICK.

I am sure that it is a disgrace to the English to have such a saint. Aunt, who was the first English duke?

MRS. F.

Edward the Black Prince who was created, in 1337, duke of Cornwall. The first marquis was the Earl of Oxford, created, in 1387, marquis of Dublin; and the first earl was Hugh de Pusat, bishop of Dublin, who was made earl of Northumberland by Richard I.; a curious instance of how spiritual and temporal titles were formerly mingled.

ESTHER.

And the viscounts?

MRS. F.

Lord Beaumont was the first viscount created by letters patent, in 1440, and perhaps you do not know, that although the eldest son of a viscount has no title, nor are his daughters styled

ladies, yet the eldest son and daughter of the first viscount are said to be the first gentleman and gentlewoman, without a title, in the kingdom.

The first baron made by letters patent, was created in 1338, but the barons had no coronets given to them, until the reign of Charles II.

Can any of you tell me the three bishops who take precedence of the rest?

ESTHER.

I think, mamma, that I can, for I read it the other day. They are—the bishop of London, as bishop of the capital city of England, and provincial dean of Canterbury; the bishop of Durham, as count palatine and earl of Sedberg; and the bishop of Winchester, as prelate of the order of the Garter.

HENRIETTA.

I wish I knew something about heraldry.

ESTHER.

Then why not study it, Henrietta? It is a very amusing pursuit, and one which you can easily follow with the assistance of a good elementary work. If you like, I will lend you Clarke's Heraldry, which will teach you as much as is necessary for general use, and I

shall be happy to assist you with my little store of information. If you will only give the subject a little attention you will soon be able to *blazon*, or describe a coat of arms.

HENRIETTA.

What a curious expression.

MRS. F.

It is derived from the French *blaser*, to blow, originating in the ancient custom of the heralds, of blowing a horn, at jousts and tournaments, when they explained and recorded the achievements of the knights. But the term *blazon* reminds me of the story of the young Duval.

HENRIETTA.

Who was he, aunt; will you tell us about him?

MRS. F.

With pleasure. He was the son of a peasant in Champagne, who died when Duval was only ten years of age. Leaving his native village, the boy, after experiencing many vicissitudes, entered into the service of some hermits at Lunéville who gave him the charge of watching their cows. One of these recluses taught him to write, and so ardent was Duval's thirst for information, that he spent all his little earnings

in the purchase of books. One day, he found a gold seal, and upon the owner coming to him to claim his property, Duval replied, "that he should not have the seal unless he could *blazon* the arms which were engraved upon it." Surprised at such an answer from a cowherd, and still more surprised, on questioning him, to find how much Duval had taught himself, the gentleman supplied him with books and maps, and gave him directions to guide him in his studies. His passion for reading rapidly increased, and one day he was found under a tree surrounded by maps and absorbed in deep reflection. The gentleman who thus discovered him inquired what he was about. Duval answered that he was finding out the way to Quebec as he wished to go to the university of that city to prosecute his studies. His inquirer was of the suite of the princes of Lorraine, who were returning from hunting in the forest, and who soon surrounded the young student. They sent Duval to college, and the duke of Lorraine, who took him under his own immediate protection, appointed him afterwards his librarian and professor of history at Lunéville. Duval's first care was to prove his gratitude towards his early friends, the hermits; he sent them a large sum of money to enable them to rebuild their house, and added to their revenues, by purchasing for

them a considerable portion of land. On the death of his patron, the duke of Lorraine, Duval followed his son Francis to Vienna, where that prince soon afterwards married Maria Theresa. Duval was made director of the cabinet of medals, and was lodged in the imperial palace, but he always retained his simple habits, and never forgot his humble origin. With the candour of true learning, he would frequently acknowledge his own ignorance\*, and would often in answer to a question, reply "I know nothing about it;" upon which a block-head one day observed to him, "But the emperor pays you for your knowledge." "The emperor," replied Duval, "pays me for what I know; if he were to pay me for all that I don't know, the whole treasure of the empire would not be sufficient."

Duval died in 1775, at the advanced age of eighty-two, preserving to the last, his undisturbed cheerfulness, the fruit of a clear conscience, and of genuine piety.

\* As another writer says, "I am ignorant of many things, but not of my own ignorance."

## CHAPTER VIII.

## ON TEMPERATURE.

THE PRICKLY PEAR. — HEAT IN WHICH PLANTS EXIST. — EXPERIMENT OF SIR JOSEPH BANKS. — POWER OF FISHES TO RESIST HEAT. — RESERVOIR AT MACCLESFIELD. — FLEXIBILITY IN THE ORGANISATION OF DOMESTIC ANIMALS. — THE GREENLAND DOG. — THE SHEEP IN ICELAND. — CATTLE FED UPON FISH. — MUSQUITOES IN THE POLES, AND IN THE TROPICS. CACTI OF SOUTH AMERICA. — SAGACITY OF MULES. — ANECDOTE. — ANIMALS INTRODUCED BY COMMERCE. — ATMOSPHERE OF THE MOON. — TEMPERATURE OF THE PLANETS, AND THEIR UNFITNESS FOR THE HABITATION OF MAN. — PHILOSOPHIC DISCOVERY. — SIR ISAAC NEWTON. — LIMITED KNOWLEDGE TO BE ATTAINED OF THE WAYS OF PROVIDENCE.

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“ The body, moulded by the clime, endures  
Th’ equator heats or hyperborean frost.”

ARMSTRONG.

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HENRIETTA.

In what a scorching situation, aunt, you have placed this prickly pear (*Cactus opuntia*).

MRS. F.

Yes; the cacti are all partial to heat, most of them growing upon the dry arid plains of South America. This species is much eaten in Sicily and Italy, and the agriculturists of Mount Etna plant it in the small fissures of the lava,

through which its roots soon penetrate, and by the force of vegetation gradually enlarge the crevices of the rock, and render it by degrees fit for cultivation.

## ESTHER.

It is wonderful what extremes of temperature plants are capable of resisting.

## MRS. F.

The vervain (*Verbena officinalis*) has been gathered at Bagnères, upon the banks of a stream, the water of which was at  $31^{\circ}$  Réaumur ( $101\frac{3}{4}$  Fahrenheit); and at Dax in the Landes, *Tremella thermalis* lives in a fountain of hot water which is at  $56^{\circ}$  to  $60^{\circ}$  of the same thermometer.\* Adanson assures us that various plants in Senegal vegetate and preserve their verdure, although the sandy plains upon which they grow are sometimes at  $61^{\circ}$  Réaumur ( $169\frac{1}{2}$  Fahr.) Sonnerat found the *Vitex agnus castus* on the banks of a thermal rivulet in Luçon, the principal of the Philippine Islands, so near the water, which was at  $174^{\circ}$  Fahr., that its roots swept it; and Forster observed the first mentioned plant flourishing, with a number of others, at the foot of a volcano, in the island of Tanna,

\* See First Series, Chapter V. for difference of the two thermometers.



one of the New Hebrides, where the thermometer stood at  $210^{\circ}$ , and *Confervæ* and other water plants are by no means unfrequently traced in the boiling springs of Italy which raise the thermometer to  $212^{\circ}$ . I have also read that, when one of the greenhouses at the Garden of Plants at Paris took fire, all the plants perished excepting the New Zealand flax, the leaves of which were burnt, but the root resisted this extreme heat.

## ESTHER.

There is a curious species of moss (*Fontinalis antipyretica*) which is almost incombustible, and is used in Sweden as a lining to wooden chimnies to prevent the wood from taking fire.\*

## MRS. F.

This power of resisting heat is possessed also by the animal creation. Of this, we have sufficient evidence in the experiments of Sir Joseph Banks and Dr. Blagden, who remained in a room heated at one time to  $260^{\circ}$ , and also in the instance of the girl who remained upwards of ten minutes in an oven where the thermometer stood, when she left it, at  $288^{\circ}$ ; but I believe there is an instance of the air

\* Grey's British Plants.

## 162 HEAT-RESISTING POWER OF FISHES.

being endured, for a space of five minutes, at  $325^{\circ}$ .

ESTHER.

Have not fishes been found alive in water of a very high temperature ?

MRS. F.

Yes. Among the many instances with which travellers have furnished us, two will be found sufficient to give you in evidence of their extraordinary power of resisting heat. Sonnerat found fishes existing in a hot spring in the Manillas, at  $158^{\circ}$ ; and De Humboldt, when travelling through the province of Quito, perceived fishes thrown up alive, and apparently in good health, from the bottom of a volcano, in the course of its explosions, along with water and heated vapour that raised the thermometer to  $210^{\circ}$ , — a temperature two degrees only below the boiling point.

ESTHER.

The common gold and silver fishes thrive in water above the common temperature, and I was told the other day by a gentleman who had visited Macclesfield, that at the coal mines near that town, there is a reservoir to receive the hot water and condensed steam from the engines employed in the works. The water

in this reservoir is consequently so hot that the hand can but just bear its heat; nevertheless, myriads of gold and silver fish are to be seen swimming in it, and the people at the mines say it is surprising how rapidly they have increased in this hot and muddy water, only two or three fishes having been, in the first instance, accidentally thrown in.

MRS. F.

I believe that gold and silver fishes are very often kept in these warm reservoirs; but both the vegetable and animal kingdom are equally able to resist the extremes of cold; and such is the kind dispensation of Providence, that in whatever climate man has been able to live, or has been impelled by curiosity to visit—whatever the soil, whatever the temperature, he has always found vestiges of animal being and of plants flourishing in vigour and in beauty.

ESTHER.

And how wonderful the readiness with which all the domestic animals that follow his footsteps are enabled to adapt themselves to the circumstances and nature of the climate!

MRS. F.

Yes; one cannot indeed reflect without ad-

miration upon the prodigious flexibility in the organisation of the animals which man has subjected to his empire. In Greenland, the dog eats the refuse of the fisheries, and, when fish fails, supports himself upon marine algæ. The Iceland sheep, when their natural food is buried too deep for them to reach it, are fed by their keepers upon fish-bones. In districts of Norway, moss of every kind is given to cattle, and sea-weed, very generally, on the coast, is dried and carted two or three miles into the country, and when scalded with boiling water, which is poured off, it forms good and nourishing food for cows.

#### HENRIETTA.

Yes, aunt, I recollect your telling us last year, that *Fucus vesiculosus* is used in Scotland as food for cattle.\*

#### MRS. F.

A recent traveller in Norway also states that "fish-heads and bones are all carefully preserved in the district of Nordland, Finmark, and in Bergens Amt, and are boiled down to a soup, of which cattle are exceedingly fond. In Bergens Amt, when more herrings or sprats are caught in any particular spot than there are

\* First Series, Chapter V.

barrels and salt to preserve, the fish are spitted on sticks, and hung up to dry; they are then greedily devoured by the cows, which in many places subsist very much on this diet." \*

## ESTHER.

But it is not only in their change of food that animals show the flexibility of their organisation. The horse and the ass, for instance, are natives of the cold and arid plains of Upper Asia, yet they follow man to the New World, there to return to their savage state, and lead under the tropics a different existence.†

## MRS. F.

But not, I should think, a very happy one, for they suffer alternately from heat and cold, and are tormented by day with horse-flies and mosquitoes, and during the night by enormous bats, which fasten themselves upon their backs, and cause dangerous wounds, rendered the more painful from being immediately filled with noxious insects (*Acari*, &c.).

## ESTHER.

The mosquitoes or gnats are also very annoying in the polar regions, and the hare in Lapland is more tormented by their attacks

\* Laing's Norway, p. 427.

† Humboldt's Voyage, t. 6.

than any other quadruped. To avoid these insects, it is obliged to leave the cover of the woods in full day, and seek the plains; hence the hunters say, that of three litters which a hare has in a year, the first dies by the cold, the second by gnats, and only the third escapes and arrives at maturity.\*

## HENRIETTA.

I had no idea that there were so many gnats in the polar regions.

## ESTHER.

Yes; their numbers are so prodigious as to be compared in Lapland to the falling flakes of snow or to the dust of the earth. The gnat, however, appears to be a universal enemy.

## MRS. F.

Yes; history informs us that Sapor king of Persia was compelled to raise the siege of Nisibis by a plague of gnats which, attacking his elephants and beasts of burden, caused the rout of his army. In the Crimea, the Russian soldiers are obliged to sleep in sacks to defend themselves from their bites; and Captain Stedman states that when in America, his soldiers

\* Kirby and Spence, vol. 1.

were forced to sleep with their heads thrust into holes made in the earth with their bayonets, and their necks wrapped round with their hammocks.

## ESTHER.

Dr. Humboldt tells us that, near the mouth of the river Unare, the inhabitants pass the night buried from three to four inches deep in the sand, leaving out their head only, which they cover with a handkerchief.

## MRS. F.

And, in such myriads do they appear to swarm, that I recollect, in talking of one of the forests, he observes, that there was "*moins d'air que de moustiques*;" and he relates also the observation of an Indian to a missionary, "*Qu'on doit être bien dans la lune, à la voir si belle et si claire, elle doit être libre de moustiques*." But, before we leave the subject of South America, I should tell you of the sagacity of the mules of that country. In plains divested of all moisture, when other animals are suffering from thirst, the mules seek the Cactus which, under its spiny covering, conceals a watery pulp. Carefully removing the thorns with its feet, the mule applies its lips to the

\* Humboldt's Voyage, t. 7.

plant, and contrives to drink its refreshing juices.

ESTHER.

What kind of Cactus is it?

MRS. F.

The spherical species with fourteen sides, called *Cactus melocactus*. It grows half immersed in the sand; it is about ten inches in diameter, and well deserves to be classed among those plants, which Saint Pierre terms "les sources végétales des déserts." The cacti belong almost exclusively to America, and their lofty cylindrical stalks, thirty feet high, rising like columns, and branching from the top like candelabra, produce a most extraordinary impression upon the stranger, when he first visits the arid plains which are covered with these plants. These stalks assume by age a woody consistency; they are considered by the Americans to be incorruptible, and are used by them to make oars, &c.\* But I was saying the sagacity of the mules in these regions is wonderful. A muleteer will not say to the traveller who hires his mule "I will give you the one which goes the best," but "I will give you the one which *reasons* the best."†

\* Humboldt. Tableaux de la Nature.

† Que mas reçonra.



Animals, like man, become more sagacious and more acute in their senses, the nearer they approach to a state of wildness: the security of a domestic life, and the progress of cultivation, diminish the natural instincts, in proportion as they are the less called into action. I recollect, when we crossed the Col-de-Balme, the pass which leads from the valley of Chamouni to Martigny, our muleteer gave us an anecdote of the sagacity and memory of one of his mules. When very young, this animal had traversed the road, and, nine years afterwards, when carrying his master across the same pass, they were overtaken by a snow storm, which destroyed every trace of the road. Although the mule had only once been that way, and that at so distant a period, yet he remembered the road so perfectly as to be able to make his way through the snow, and carry his master across in safety.

#### ESTHER.

So numerous are the mules in South America, that 90,000 of these animals are said to be wandering at large, in the plains on the north of the Orinoco. The herds of wild cattle and horses, which overrun South America, are immense; yet these animals have all sprung from

a few individuals, which were first carried there by the Spaniards.

MRS. F.

Pigs were first introduced into America by Columbus; and our ships have been the means of importing, unintentionally, the rat into the New World\*, in the same manner that the Norway rat has been brought into our own country, and with equally devastating consequences.

ESTHER.

Commerce, we have every reason to believe, first introduced into England the American blight (*Aphis lanigera*), that pest of our orchards; and the cock-roach is also an animal of foreign importation. The moth so destructive to beehives (*Tinea melonella*), and the insect of the asparagus (*Chrysomela asparagi*), were not originally natives of Sweden, where they are now common; and the peach trees in St. Helena have been all destroyed by an insect that was imported from the Cape. †

MRS. F.

De Humboldt tells us, that the horses, cows, and other animals of European origin are obliged, during the periodical swellings of the

\* Lyell's Geology.

† Kirby and Spence, vol. i.

great rivers of South America, to lead an almost amphibious life. During the time of high-water, the mares are to be seen, followed by their colts, swimming about, and feeding upon the grass, of which the top alone appears above the surface of the water, while crocodiles are in quick pursuit to make them their prey. In this manner the animals, who escape their enemies, live, till the rivers return again to their beds; and they then roam once more in the savannahs, where they find a fine odoriferous grass, and enjoy, as in their native climate, the renewed vegetation of spring. Here, then, is another instance of the pliability of the organisation of domestic animals to the changes of climate and temperature.

HENRIETTA.

I wonder whether our animals could live in the moon.

MRS. F.

It is inferred not; for the lunar atmosphere must be of a greater degree of rarity that can be produced by our best air-pumps, consequently, no terrestrial animal could exist in it. Water would not remain fluid in any part of Mars, even at his equator; and, in the temperate zones of the same planet, alcohol and quicksilver

would freeze. In Meroury, the mean heat, arising only from the intensity of the sun's rays, must be above that of boiling quicksilver; and water would boil, even at his poles. Thus the planets, though kindred with the earth in structure, are totally unfit for the habitation of such a being as man. The planets, also, differ very much in density from the earth. The earth is nearly four times as dense as the sun: a moderate sized man would weigh about two tons at the surface of the sun, and, on the contrary, at the surface of the four new planets, we should be so light that it would be impossible to stand, from the excess of our muscular force; for a man would weigh only a few pounds. \*

HENRIETTA.

How wonderful it is that astronomers should be able to ascertain these points.

MRS. F.

To minds unacquainted with science, such results of philosophic research seem to transcend the powers of human conception, and we view with wonder many assertions which the natural philosopher is enabled with confidence to make. They are, nevertheless, conclusions to which any one may certainly arrive, who will only be at the

\* Mrs. Somerville.

trouble of examining the chain of reasoning by which they have been obtained. "The chain is laid before us, and every link is submitted to our unreserved examination; if we have patience and inclination to enter on such detail. Hundreds have gone through it, and will continue to do so:" but "if, however, we content ourselves with this general view of the matter, we must content ourselves also to take on trust, that is, on the authority of those who have examined deeper, every conclusion which cannot be made apparent to our senses." \* Those individuals indeed deserve our admiration and respect,

"Whose curious thoughts with active freedom soar,  
And trace the wonders of creating pow'r." †

But few are endowed with powers of reasoning for the task; few minds can deduce from objects, apparently trivial and unimportant, results so wonderful, so stupendous. ‡ "To the natural

\* Herschel's Discourse.

† Mrs. Elizabeth Carter.

‡ As Akenside says,—

"But not alike to ev'ry mortal eye  
Is this great scene unveil'd: for since the claims  
Of social life to different labours urge  
The active powers of man, with wise intent,  
The hand of Nature on peculiar minds  
Imprints a different bias, and to each  
Decrees its province in the common toil.  
To some she taught the fabric of the sphere,  
The changeful moon, the circuit of the stars,  
The golden zones of heaven," &c.

PLEASURES OF IMAGINATION.

philosopher there is no natural object unimportant or trifling; from the least of nature's works he may learn the greatest lessons. The fall of an apple to the ground may raise his thoughts to the laws which govern the revolution of the planets in their orbits," and the vibrations of a lamp may first awaken his attention to the oscillation of the pendulum.\*

## ESTHER.

No one has ever, I believe, made such discoveries as Sir Isaac Newton.

## MRS. F.

No; no one has ever so widely enlarged the sphere of human knowledge. The magnitude of his astronomical discoveries excite our admiration of the mental powers which could so familiarly grasp them; and the minuteness of his researches is no less calculated to produce a corresponding impression. "Whichever way we turn our view, we find ourselves compelled to bow before his genius, and to assign to the name of Newton a place in our veneration which belongs to no other in the annals of science. His era marks the accomplished maturity of the human reason as applied to such objects. Every thing which went before

\* See the anecdote of Galileo.

might be more properly compared to the imperfect attempts of childhood." \* Whatever has since been performed has never, in point of intellectual effort, surpassed those brilliant discoveries which have shed such a lustre upon his name.

## ESTHER.

It is related of Sir Isaac Newton, that, when one of his friends was complimenting him upon his wonderful talents, Sir Isaac assured him, that whatever he had done worthy of notice was owing to a patience of thought, rather than to any extraordinary sagacity, with which he was endowed above other men. "I keep," he said, "the subject constantly before me, and wait till the first dawnings open slowly, by little and little, into a full and clear light."

## MRS. F.

This power which he had acquired of steady and continuous attention, that is, of directing all the faculties of his mind to bear undividedly upon the one subject immediately before it, so as fully to contemplate its nature and its bearings, is undoubtedly necessary for the due exercise of every other mental process; and, indeed, we have every reason to believe, that the diver-

\* Herschel's Discourse.

sities in the power of judging, in different individuals, are much less than we are apt to imagine; but that the difference is rather to be ascribed to the manner in which the powers of the mind are directed and concentrated to one object. An ordinary mind, as I have before said, would have long beheld the fall of an apple, without seeing any relation between this common-place occurrence and the laws that guide the planets in their course; but it was from such a relation that Newton deduced those grand principles which govern the universe.

ESTHER.

Then the great object of science is to ascertain facts, and to trace their relations to each other.

MRS. F.

It is so; and, in the pursuit of science, it must always be remembered, that the powers which regulate those relations are entirely hidden from us in our present imperfect state of being. "It is humbling to the pride of human reason, but it is not the less true, that the highest acquirement ever made by the most exalted genius of man has been only to trace a part, and a very small part, of that order which the Deity has established in his works. When we endeavour to pry into the causes of this order, we perceive the operation of powers which lie far beyond the



reach of our limited faculties. They who have made the highest advances in true science will be the first to confess how limited these faculties are, and how small a part they can comprehend of the ways of the almighty Creator. They will be the first to acknowledge, that the highest acquirement of human wisdom is to advance to that line which is its legitimate boundary, and there, contemplating the wondrous field which lies beyond it, to bend in humble adoration before a wisdom which it cannot fathom, and a power which it cannot comprehend." \*

\* Abercrombie on the Intellectual Powers, p. 22.

## CHAPTER IX.

## THE KITCHEN GARDEN.

CLARET GRAPE. — AUTUMNAL TINTS. — INJURIES TO LEAVES. — INFLUENCE OF LIGHT UPON THE COLOURS OF PLANTS. — BLANCHING. — CHEIRANTHUS MUTABILIS. — WHITE CENOTHEA. — COBCEA. — HIBISCUS MUTABILIS. — BLACK AND WHITE HAMBURG GRAPE. — VINES OF ISCHIA. — OF FOIX. — SULTANA AND SYRIAN GRAPES. — CULTIVATION OF THE CORINTH GRAPE. — MULBERRY. — COLLECTIVE FRUITS. — STRIPPING OF THE MULBERRY TREES. — SILK. — NAMES DERIVED FROM THE MULBERRY. — WAX ON VEGETABLES. — CEROXYLON ANDICOLA. — CANDLEBERRY MYRTLE. — LAW OF SOLON. — INFLUENCE OF THE VICINITY OF PLANTS WITH ACID JUICES. — OF LEGUMINOSÆ. — THE PURKE AND THE SPANISH BROOM. — ROTATION CROPS. — OF FISH AND VEGETABLES. — CLAUSE IN FRENCH LEASES RESPECTING THE SALSOLA. — EFFECT OF CULTIVATION UPON VEGETABLES AND FRUITS. — SPINACH. — TARRAGON. — MUSTARD AND CRESS. — OXALIS CRENATA. — ESCULENT BULBS AND TUBERS. — CASSADA. — POTATOE.

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“The sunny wall  
Presents the downy peach, the shining plum,  
The ruddy fragrant nectarine, and dark,  
Beneath his ample leaf, the luscious fig.”

THOMSON.

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## HENRIETTA.

ESTHER, how red the leaves of that vine have turned since I observed it last week.

## ESTHER.

Yes. It is rather soon for them to assume their autumnal tints; but this vine is of the kind

which produces the Bordeaux or claret grape, and it always changes its colour earlier in the season, and turns of a more brilliant red, than any other in the garden. The grapes which it yields are generally so acid, that we have never used them, except for making wine or vinegar, until last year \*, when the unusual heat of the summer ripened them sufficiently for the dessert.

MRS. F.

Naturalists have observed, that the red autumnal tint is most common in those leaves which contain an acid, such as the vine, the viburnum, the pear, sorrel, &c.; the peculiar brilliancy, therefore, of the red of our claret vine leaves, may be attributed to the larger portion of acid which this grape contains compared with the other kinds in the garden.

ESTHER.

It is an established fact, that the same colour is produced upon a leaf by the accidental puncture of an insect, the attack of fungi, or by early frosts, as that leaf would assume as its autumnal tint.

HENRIETTA.

Have the kindness to explain that again, Esther.

\* 1835.

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ESTHER.

I mean, that the colour to which a leaf changes, from any injury which it receives, is precisely that tint which the leaf would naturally take of itself in autumn. Thus, if an accident were to injure the leaf of a poplar or of a lilac, the leaf would turn yellow, if of a pear tree or of a sumach, red, those being the colours which these leaves turn in the autumn.\*

MRS. F.

The information which we at present possess respecting vegetable colours is very limited; but that the action of solar light is, in reality, the great cause of colour in plants is proved by the leaves of plants which are grown in darkness being white or deprived of colour.

ESTHER.

Then it is not that plants lose their green colour by being placed in the dark, but rather, that, being removed from the influence of the light, they never acquire any colour at all.

MRS. F.

Exactly so. Vegetable tissue is pale and colourless, and, therefore, you perceive the error of our gardeners in talking of *blanching* their sea-kale and celery; they do not make them white, but, by depriving them of the action of the

\* De Candolle.

light, they prevent them from turning green, and cause them to retain the original white colour of their tissue.

ESTHER.

Those flowers, then, which, on their first opening, are white, and afterwards become coloured, are influenced, I suppose, by the same cause, viz. the action of solar light.

MRS. F.

They are so.

HENRIETTA.

But to what flowers do you allude, Esther?

ESTHER.

The pretty *Cheiranthus mutabilis*, for instance, which continues flowering so late in the year. Its flowers, on opening, are of a pale purplish white, they then change to bright yellow, and pass, in different gradations, through the various shades of purple. Then there are the beautiful evening primroses, (*œnothera tetraptera*, *speciosa*, *taraxacifolia*, &c.,) the flowers of which, when they first expand, are of a clear white, but, before they die, they assume a pink or rose-colour.

HENRIETTA.

And I know of another example, the *Cobaea scandens*.

MRS. F.

Yes: its large bell-shaped corolla is of a greenish white when it first opens, and, on the following day, it becomes purple; but, not to multiply examples, I will only allude to one more, the changeable rose (*Hibiscus mutabilis*), or, as it is called by the French, *la fleur d'une heure*. This flower, when it first expands in the morning, is white, from which it passes to rose-colour, and, finally, to crimson. In the West Indies these changes all take place in the course of a day; but in the hothouses of our climate they occupy a much longer time.

HENRIETTA.

Aunt, what vine is this growing near the Bordeaux grape?

MRS. F.

It is the black Hamburg: the celebrated vine at Hampton-Court, which covers an entire house, is of this kind.

ESTHER.

What are its dimensions?

MRS. F.

It extends over a surface 22 feet broad by 72 feet long, equal, therefore, to 1694 square feet. The gardener at Hampton-Court informed me,

that, in 1816, there were at least 2240 bunches of grapes upon this vine, and that the weight of the whole crop may fairly be estimated to have been a ton.

HENRIETTA.

What an extraordinary return from one vine !

MRS. F.

The grapes which are brought over from Portugal in jars, and of which it is stated that 10,000 pounds' worth are imported annually into this country, are the white Hamburg.

ESTHER.

I have understood that the Ischian grape bears fruit at three different periods of the year.

MRS. F.

Yes : this is effected by the peculiar and ingenious manner in which the vine is pruned. At the time of flowering, and when the grape begins to stone, the vine is cut at the second or third knot above the fruit: the shoot throws out new branches, which flower : and, after this second flowering, the same process is repeated, and a third flowering obtained. By this method the grape is made to ripen at Paris, in August, September, and October.\*

\* De Candolle, *Physiologie Végétale*, p. 1818.

ESTHER.

I was reading, the other day, that, in the neighbourhood of Foix, stones, which generally offer such obstacles to agriculture, are employed with advantage in the vineyards.

HENRIETTA.

For what purpose?

ESTHER.

Great stones are carried to the vineyards, and carefully placed round the vines; these become heated by the sun, and, reflecting their heat upon the grapes, assist and accelerate their ripening. \*

MRS. F.

Did you observe the Kishmist grape, Henrietta, at Mrs. Clifford's, the other day?

HENRIETTA.

No, indeed, aunt, I did not.

MRS. F.

It is remarkable, as being the kind which produces the little stoneless raisins called Sultanas. Mrs. Clifford also cultivates the Syrian grape, which yields the largest bunches of any species that is known in England: they have at-

\* De Candolle. *Phys. Veg.* p. 1253.



tained the weight of nineteen pounds and a half\*; and, in the native country of the vine, bunches have been grown weighing, it is said, forty pounds.

FREDERICK.

I can tell you an anecdote about the vine.

MRS. F.

Let us hear it, then, Frederick.

FREDERICK.

During the revolt of Spartacus ( B. C. 73 ), the gladiators were besieged in Mount Vesuvius, and had no other road by which to escape, except a very narrow path which was carefully guarded by the Romans. The rest of the mountain was covered by rocks, over which the wild vines grew in great numbers. The gladiators cut the strongest tendrils from these vines, with which they made firm and strong ladders ; by these they descended to the plain, and thus escaped from their enemies.

MRS. F.

And I will give you another. CENEUS, king of Arcadia, was the great cultivator of the vine. His slave, one day, predicted that he would never again taste wine from his own vintage.

\* Lindley's Guide.

CENEUS immediately ordered a cup of wine to be brought to him; when the slave observed, "The cup is still far from the lip." At that moment, it was announced that a wild boar of Calydon was in the king's vineyard. CENEUS threw down the untasted cup, rushed out to his vineyard, and was killed by the boar. This, probably, is the origin of the common adage.

ESTHER.

Mamma, is not the dried currant a grape?

MRS. F.

It is so.

HENRIETTA.

Then why do we call them currants?

MRS. F.

It is a corruption of Corinth, by which name they were usually denominated, from Corinth, where they were first cultivated. Philips so calls them, when he says,—

"Now will the *Corinths*, now the raspas, supply  
Delicious draughts; the quinees now, or plums,  
Or cherries, or the fair Thisbean fruit,  
Are press'd to wines."

ESTHER.

Would you have the kindness, mamma, to give us some account of the currant, or Corinth grape?

MRS. F.

With pleasure. The Corinth grapes are about the size of a pea or of a red currant, and, when ripe, are of a purplish black: they are generally without seeds; and the juice, which is abundant, is sweet, but without any perfumed flavour.\* The vine does not appear to be indigenous to Corinth, and there is no mention of it before the year A. D. 1600, when it is stated to have been brought into the Morea from the Island of Naxos, where, at present, not a single plant of it is to be found. The cultivation of this grape is not confined to Corinth, but extends in the Morea along the Gulf of Lepanto, in the territory of Patras, and as far as Gastouni (the ancient Elis). It is also produced in the islands of Cephalonia, Zante, and St. Mauro; but the best currants still come from the shores of the Gulf of Lepanto.

ESTHER.

Then it would appear that these vines like the vicinity of the sea?

MRS. F.

Yes; they prefer the plains near the sea, and delight in a deep, stony, dry soil: they will not flourish in rich ground. The vines are kept

\* Horticultural Transactions, 2d series, vol. i. p. 240.

very dwarf, like those of Burgundy, not exceeding from four to five feet in height.

HENRIETTA.

Then, if the vines are so much cut in, a vineyard cannot surely be a pretty object?

MRS. F.

No; the vineyards of the Rhine, and in those parts of France where this mode of pruning is adopted, are far from picturesque; but, if we wish to see vines in full beauty, we must go to Italy, where they are generally planted intermediate with the mulberry, and are either supported by a trellis-work of the *Arundo donax*\*, or hang in graceful festoons from tree to tree.

ESTHER.

And I have heard you say, mamma, that in the Tuscan valleys the vine is trained upon the maple. This tree is suffered to grow about twelve feet high, and its branches are pruned into a kind of frame-work, over which the vine runs in wild luxuriance, forming a classical *corbeille*, or basket, such as we see represented in ancient painting or sculpture.

MRS. F.

Yes; I have often admired the elegant forms

\* See *Arundo donax*, in Chapter X. of the First Series.

which the maple and the vine thus present ; but let us return to our Corinth grape.

The vines do not bear fruit until they are seven years old ; and it is not until their twelfth year that they are considered to be in full bearing. These vineyards generally last eighty, and sometimes a hundred, years.

ESTHER.

When does the vintage take place ?

MRS. F.

In the months of July and August. The grapes are cut by women and children, who carry them in baskets to a large enclosure, which is placed in the centre of the vineyard, and which resembles a thrashing-floor, except that it is not perfectly level, but has a slight inclination, to admit of the moisture running off. The bunches are next stripped by two workmen, who are stationed at the enclosure for that purpose, and who take off each berry one by one, carefully rejecting all that have received any injury. The grapes are then spread upon the floor of this enclosure ; and are left there, night and day, until they are dry, being carefully turned once in every four-and-twenty hours ?

ESTHER.

How long do they take in drying ?

MRS. F.

In a fine season, from eight to ten days are sufficient, but, in wet weather, they require from twenty to thirty; and, if rain should happen to be of long continuance, the crop is entirely lost. When the grapes are perfectly dry, the few stones which they contain are separated from the grapes with little rakes made of the African Boxthorn (*Lycium afrum*), and the grapes are then preserved in storehouses called *foragli*. These storehouses are of a peculiar construction, having a hole in the roof by which the grapes are thrown in; they are then trodden down, until they form such a solid mass that iron-pointed shovels are subsequently used to detach them. When the magazine is full, the hole in the roof is hermetically closed, and a small entrance is opened at the base of the storehouse when the grapes are to be removed. The Corinth grape is an important object of commerce in the Morea, whence from six to eight millions of pounds are annually exported. The greater part is sent to Holland and England: the more they are dried, the higher the value at which they are sold.\*

ESTHER.

Thank you: I was not at all aware before that they were cultivated any where except

\* See Scrofani, *Voyage en Grèce*, for the above particulars.

in the Ionian islands; for I was misled by the lines, —

“ From soft Ionian isles, well known to fame,  
(Ulysses’ once) the luscious currant came.”

HENRIETTA.

Aunt, I did not like to interrupt you; but in the quotation from Philips, which you gave us just now, he speaks of the “ Thisbean fruit;” which does he mean?

MRS. F.

The mulberry; but, for his reason for so designating it, I must refer you to the story of Pyramus and Thisbe, in the Classical Dictionary. Wine used formerly to be made from mulberries, and, I believe, is still manufactured from this fruit. We find *morat*, or the juice of mulberries, mentioned as an English beverage. The mulberry is remarkable as being one of those fruits which is not produced by a single flower, but is formed by the adhesion of a considerable number into a single mass. Such, also, is the pine-apple, which consists of as many flowers as there are rhomboidal spaces upon its surface: in the mulberry, each tubercle represents a single flower.

ESTHER.

The fig, again, is of the same nature.

MRS. F.

It is ; so is the fir cone, in which each scale represents a single flower. In the classification of fruits\*, these (with some others) are assembled in a class, termed collective fruits. This class is again subdivided into different sections; but the whole group derive their character from the cohesion of their parts into one solid mass.

ESTHER.

When you were in Italy, mamma, did you see the establishments of silkworms ?

MRS. F.

No, I did not ; but the mulberry trees, stripped of their leaves, have a most melancholy appearance. The mulberry is *spogliato*, as the Italians term it, two or three times in the course of the year, care being taken to leave a large tuft of leaves upon the top of the tree whenever the operation is performed.

ESTHER.

With what view ?

MRS. F.

The sap of a tree always directs itself towards those branches which have leaves, in preference

\* See Lindley's Introduction to Botany.



to those which have lost them, and, with difficulty, attains the summit of leafless branches. By leaving therefore a tuft upon the top of the mulberry the sap is forced up to every part of the tree, and a second development of leaves takes place.\*

## ESTHER.

I have understood that the greater part of the white silk manufactured in England is brought from China, but is always mixed with so much gum as to render it necessary to boil it before it is used. The finest silk is brought from the Roman states.

## HENRIETTA.

I should like to know more about the silk manufacture.

## MRS. F.

Then refer to some of the encyclopædias and dictionaries of the arts; they will give you the information which you require, and will also furnish you with the whole history of this important production. "When silk was so scarce in this country that James I., while king of Scotland, was forced to beg of the Earl of Mar, the loan of a pair of silk stockings to appear before the English ambassador, enforcing his request

\* De Candolle.

with the cogent appeal, — “ For you would not; sure, that your king should appear as a scrub before strangers.” Nay, long before this period, even prior to the time that silk at Home was valued at its weight in gold, and the emperor Aurelian refused his empress a robe of silk on account of its price, millions of the Chinese peasantry, in some of the provinces, were clothed with this material, and for thousands of years to the present time, it has been both there and in India (where a class whose occupation was to attend silkworms appears to have existed from time immemorial, being mentioned in the oldest Sanscrit books), one of the chief objects of cultivation and manufacture. You will admit, therefore, that when nature

“ Set to work millions of spinning worms,  
That in their green shops weave the smooth-hair'd silk  
To deck her sons,” \*

she was conferring upon them a benefit scarcely inferior to that consequent upon the gift of wool to the fleecy race, or a fibrous rind to the flax or hemp plants.” †

ESTHER.

The mulberry (*Morus*) not only gave its name

\* Milton's *Comus*.

† Kirby and Spence's *Entomology*, vol. II.

to the Morea, but I have also understood that Ludovico Sforza of Milan so well known for his base intrigues with Charles VIII., and his subsequent imprisonment at Loches in Touraine, did not derive his designation of *il Moro*, from his dark complexion, but from assuming the mulberry as his device, that tree being the symbol of prudence.

MRS. F.

The Morello cherry is so called from *Morus*, the Latin name of the mulberry, the dark juice of this kind of cherry resembling that of the mulberry. The chesnut (*Castanus*) was so named from *Castanea*, in Magnesia, and the damson from Damascus, whence this fruit first came.

HENRIETTA.

And why was the greengage so called?

MRS. F.

It derives its French appellation *reine Claude* from the queen of Francis I., but the origin of its English name is more difficult to determine. The only cause which I can find given is, that this plum (which it appears had been long previously known in this country), was sent over among some other fruit trees from Paris, to a member of the Gage family, and the ticket

this plum being lost, the gardener named it after his employer, greengage, by which appellation it has ever since been designated.\*

HENRIETTA.

How beautiful the bloom is upon this plum!

ESTHER.

I have been told that the London fruit-sellers restore the bloom to fruit which has suffered from gathering, by the means of a fine cloud of powdered magnesia which they throw over it with a very fine syringe.

MRS. F.

It is very probable that such a process would reproduce the appearance of bloom upon the fruit.

HENRIETTA.

What is it, aunt, that forms the bloom of fruit?

MRS. F.

The glaucous powder we call bloom is wax which many vegetables secrete in considerable quantities. It is of common occurrence on the surface of plants and even in their substance. It causes the bloom of the pear and the cucumber, it produces the glaucous appearance of the cabbage and sea-kale, and the powdery efflo-

\* Lindley's Guide.

rescence of many of the spinach tribe (*Chenopodeæ*).<sup>\*</sup> In these cases, it constitutes a coating that repels water, and defends from the effects of humidity those parts from which it is excreted; thus answering the same purpose as the oil which covers the feathers of the duck or the swan.

Wax is also formed upon the leaves of the poplar, upon the stalks of the bramble (*Rubus occidentalis*), and upon the bark of the willow. The *Iriarteia* and the *Ceroxylon* have their trunks covered with a coating of wax, sufficiently thick to be worth collecting. Little is known respecting these two trees, but the wax palm (*Ceroxylon andicola*) also produces wax upon its leaves, this substance appearing to ooze out from all parts of the surface of the tree.

ESTHER.

And you have not mentioned the candleberry myrtle (*Myrica cerifera*).

MRS. F.

No; this being the plant which produces wax in the greatest quantity, I have reserved it for the last. This shrub grows abundantly in Louisiana, and its berries are guarded with a thick coat of wax.

\* Lindley.

K 3

ESTHER.

How is it extracted?

MRS. F.

By throwing the berries into boiling water and pressing them. The wax which rises to the surface is strained off, and again melted to extract any water it may retain, after which it is converted into candles that are of a very good quality, although of a greenish hue; they may however be whitened by the application of chlorine. The wax afforded by the berries of the candleberry myrtle is equal to about one ninth of their weight. \*

HENRIETTA.

Did not Cardinal Pole introduce the fig-tree into England?

MRS. F.

So it is generally asserted. Most of our fruits were first brought into this country in the reigns of Henry VII. and Henry VIII.

HENRIETTA.

What a warm corner this would be for a fig-tree !

MRS. F.

Yes, but it is too near the nectarines, and

\* De Candolle, *Physiologie Végétale*, p. 249.

the juices of the fig are so acrid, that I should be afraid of its roots injuring those of its neighbours. It has been recently observed to be hurtful to the peach; and it is singular that one of the laws of Solon\*, which fixes six feet as the ordinary distance between trees, requires nine with respect to the fig-tree, so that the ancients evidently had some impression of its injurious effect upon the trees planted in its vicinity.†

## ESTHER.

I believe that all plants of acrid juices are considered hurtful to their neighbours. The darnel‡ injures the corn; the euphorbia, the flax; and the poppy, the chicoraceæ, &c. deteriorate the soil for other vegetables.

## MRS. F.

The Leguminosæ, on the contrary, contain sweet and mucilaginous juices which ameliorate the soil. On this principle they have been employed for reclaiming uncultivated ground. In the vicinity of Lodève§, the Spanish broom (*Spartium junceum*), and in Bretagne and Lower Normandy, the common furze (*Ulex europæus*), have been used for this

\* See the Life of Solon in Plutarch.

† De Candolle.

‡ See Chapter X.

§ Department of Hérault.

purpose, and after having been sown with these plants for three or four years, the ground has been rendered fit for cultivation.

#### ESTHER.

In the sandy territory of the Campine, the Belgians also employ a similar expedient. They first sow the broom, then pines, next beech or some other genus of the Amentaceæ \*, and, at the end of thirty or forty years, the sand of the Campine is sufficiently ameliorated for the cultivation of herbaceous plants.

#### MRS. F.

Our own nurserymen adopt a rotation of trees in their nurseries, and do not continue to cultivate one genus of plants for any length of time in the same part of their ground, but replace their fruit trees with pines or Amentaceæ and so forth. The system of rotation crops is, as you know, founded upon this one principle, viz. that the juices given out by the roots of a plant are hurtful to others of its own species; therefore fir-trees will not thrive where conifers have been planted before, or corn where corn has been long cultivated, &c. Of the latter we have a striking instance in the case of Asia

\* Amentaceæ are plants bearing a catkin, such as the willow, poplar, oak, chesnut, birch, &c.



Minor and Northern Africa, which owing to the unlimited cultivation of corn, have degenerated from the most fertile regions of the earth into frightful arid wastes.

ESTHER.

I recollect that when one of the peach trees against Mr. Harcourt's wall died, another which was planted to replace it died also ; and in the village avenue, four or five elms were planted one after the other, to succeed one which had been blown down, and it was not until a quantity of fresh earth had been thrown into the hole to refresh the soil that the last one succeeded. I suppose that if a fir or a tree of any different family from the elm, had been tried, it would have grown without difficulty.

MRS. F.

It would so ; but the most curious example of the system of rotation is in the valley of the Saône, where animal and vegetable crops are alternated.

HENRIETTA.

How is that effected ?

MRS. F.

The ground is flooded for two or three years and the water well stocked with fish. These

are an object of value in themselves, and also serve to enrich the ground, which, after the appointed time, is again drained, and restored to vegetable cultivation.\*

ESTHER.

I have understood that the ground in which the plants that produce soda are grown, becomes more salt than that in which it has not been cultivated.

MRS. F.

Yes, this fact is so well established in the south of France that, at the time when the *Salsola* was extensively grown, the landlords by their leases, prohibited the farmers from cultivating it beyond a certain number of times in a given period, and De Candolle has satisfied himself, by analysis, that these plants do really impart a quantity of salt to the ground in which they are grown.

HENRIETTA.

Is not the sea-kale a marine plant?

MRS. F.

Yes; and this vegetable is one of the instances of the effect of cultivation. Light, as we know, favours the elaboration of the juices of a plant,

\* De Candolle, *Physiologie Végétale*, p. 1890.

and by depriving it of light we diminish their strength and flavour. Thus we ameliorate, by exclusion of the light, the strong taste of the sea-kale (*Crambe maritimum*) the celery and the endive; or we take the young shoots of plants which, in their mature state, would be unfit to eat, such as the poppy\*, the dandelion, the hop, the asparagus; or we seek to diminish by cultivation their acrid properties. The conversion of the dangerous, acrid wild celery (*Apium graveolens*), into a mild and grateful vegetable, is a fine instance of the effect of cultivation; so is the sea-kale, to which we have already alluded, the asparagus, the cabbage (*Brassica oleracea*), and many other of our garden vegetables, which, I believe, the Italians were the first to convert to culinary purposes.

Nor are the effects of cultivation less apparent in rendering our native fruits more salutary and agreeable to the taste. Who would recognise the wild parent of a greengage-plum in the austere sloe (*Prunus spinosa*), or that of the Ribston pippin in the worthless acid crab (*Pyrus malus*)? Or what resemblance can be traced between the Beurré or Jargonelle pears, and that stony, astringent fruit (*Pyrus communis*), which even birds and animals refuse to eat? Yet these are all undoubted cases of

\* The poppy when young is eaten in Languedoc.

improvement, resulting from time and skill patiently and constantly in action.\*

HENRIETTA.

Aunt, where did spinach first come from?

MRS. F.

That appears to be unknown. We first find it mentioned in the 14th century, among the different dishes allowed monks on fast days. It seems to have been originally introduced into Europe through Spain being called by the Arabs and Moors, *hispanach*, or Spanish plant, of which term our spinach is only a corruption.†

ESTHER.

Shallots came from Ascalon; hence their Latin specific name. (*Allium ascalonicum*.)

HENRIETTA.

What is this herb, aunt?

MRS. F.

Tarragon (*Artemisia dracunculus*), the only species of wormwood which we use in this country to flavour vinegar, but in the Alps others are also employed (*A. glacialis*, *rupestris*, and

\* Lindley's Guide.

† Beckmann's History of Inventions.

*spicata*, and *Achillea nana*), all these plants possessing the same properties, and being used indiscriminately for each other.\* But we have in the flower garden another of the Compositæ, which possesses a similar flavour, and which might probably be employed for the same purposes as the tarragon. I allude to *Tagetes lucida*, a plant which belongs to the same genus as the French and African marygold; bite one of its leaves and you will perceive how exactly it resembles the taste of the tarragon.

HENRIETTA.

What are the plants which afford the salad we call mustard and cress?

MRS. F.

The white mustard (*Sinapis alba*), a British plant, and an Asiatic species of pepperwort (*Lepidium sativum*), are the two herbs which, eaten in a young state, are thus denominated. But here is one of the most useful additions which we have lately made to our collection of esculent vegetables, the *Oxalis crenata*, a native of South America, where the tubers of another species (*Oxalis tuberosa*) are also eaten.\*

\* De Candolle, Propriétés Médicales des Plantes.

† *Oxalis acetosella*, *compressa*, *frutescens* and *tuberosa*, are all remarkable for the quantity of salt of sorrel which they contain. *O. dodecandra* and another species are called, in Peru, *Vinaigrilla*, to indicate their flavour. (D. C.)

HENRIETTA.

In what manner do you use *Oxalis crenata*?

MRS. F.

The leaves which possess the agreeable acid taste common to the whole family, may be used either as spinach or salad. The fleshy stalks, when peeled, are converted into an excellent preserve, and the tubers, which it produces abundantly, are eaten like potatoes or Jerusalem artichokes (*Helianthus tuberosus*); so that you see every part of the plant is useful.

ESTHER.

I have heard that the roots of an *Alstræmeria* (*A. edulis*) form a wholesome food, and those of *Cyperus esculentus* also.

MRS. F.

Yes; so much nutritive matter is contained in bulbous and tuberous roots, that many have been turned by man to his advantage. Those of the snowdrop, when boiled, resemble in taste the orchis. The bulbs of the hyacinth are also used; those of the Martagon lily make a food in Siberia; *Asphodeus ramosus* is given to pigs in France, and indeed, while in the harmless families of plants the roots are always eatable, (by the application of fire), they are rendered

nutritious and innocent in those which are poisonous and hurtful.

## ESTHER.

As for instance in the Cassada (*Jatropha manihot*) which is strongly venomous, until the action of fire expels its acrid principle, leaving only a wholesome mucilage, which forms a general object of food in tropical climates, and under the name of tapioca, is much used in our own.

## HENRIETTA.

But after all, the potatoe is the most useful vegetable that has ever been imported.

## MRS. F.

Some assign its introduction to Sir Francis Drake, others to Sir Walter Raleigh: to whichever the honour may be due, it is one of the most lasting benefits that has ever been conferred. With this valuable and productive vegetable, the real want of food can never be felt; and so widely is it now diffused, that the potatoe is cultivated within the tropics, and in the plains of Siberia; in Chili, at eleven thousand feet above the sea; and in the environs of Quito (almost under the equator), at eleven hundred and fifty only.\*

\* Bowdich's Madeira.

ESTHER.

From the northern counties of England potatoes are largely exported to the Mediterranean.

MRS. F.

On their first introduction, they were but slowly diffused. It is remarkable that the potatoe has become an object of European agriculture, only since the end of the 17th century, though tobacco has been cultivated in Portugal since 1559. Before the conquest, the use of tobacco was general in America, while that of the potatoe was unknown in Mexico and the Antilles. Thus has a simple article of luxury spread itself, in the two continents, with greater rapidity than a plant which has so powerfully influenced the welfare of society.\*

ESTHER.

So late as the commencement of the seventeenth century, the potatoe was regarded in England as so great a luxury, that at the queen's table it was only served in small quantities, and at the price of two shillings a pound; it was, for a long time, treated as a fruit, baked in pies with spices and wine, or eaten with sugar; and nearly two hundred years elapsed

\* De Humboldt.



from its first introduction into this country, before its cultivation as a field crop.

MRS. F.

I myself know of an instance that occurred within these last fifty years. Some potatoes were sent as a present from Ireland to a gentleman at Bordeaux, and his cook served them up raw, cut into slices, with oil and vinegar, having no idea of any other mode of preparing them,\*

\* Fact.

## CHAPTER X.

## THE VISIT TO A COTTAGE.

THE SICK COTTAGER. — HER GARDEN. — MAYWEED. — HONEY-COMB. — BEESWAX, HOW BLEACHED. — MEAD, HYDROMEL AND METHUEGLIN. — OFFICE OF MEADMAKER TO THE WELSH PRINCES. — MOUSE IN A HIVE — BEES, THEIR ANTIPATHIES AND THEIR MEMORY. — ERGOT AND OTHER PARASITIC FUNGI. — BARNEL. — PARABLE OF THE WHEAT AND THE TARES. — LOLLARDS. — CAROB, THE HUSKS OF THE PRODIGAL SON. — SNAKES AND VIPERS, VARIOUS ANECDOTES OF. — RATTLE-SNAKES. — VIPER IN A JAY'S NEST — MODE OF KILLING IT BY ITS OWN VENOM. — MODE OF CATCHING THESE ANIMALS. — EATEN BY DOGS AND BY A CAT. — SERPENT-HUNTING CATS OF CYPRUS. — MATERNAL DEVOTION OF THE PARTRIDGE. — THE YELLOW RATTLE. — THE DAISY.

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“Behold the cot! where thrives the industrious swain,  
 Source of his pride, his pleasure, and his gain;  
 Screened from the winter's wind; the sun's last ray  
 Smiles on the window, and prolongs the day;  
 Projecting thatch the woodbine's branches stop,  
 And turn their blossoms to the casement's top:  
 All need requires is in that cot contained,  
 And much that taste untaught and unrestrained  
 Surveys delighted.”

CRABBE.

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## HENRIETTA.

WHERE are you going, Esther, so early in the morning? I thought you always remained at home until one o'clock.

ESTHER.

So I generally do ; but I have just heard such an indifferent account of Mrs. Thomson, the wife of one of our labourers, that I am anxious to see her.

HENRIETTA.

May I go with you ?

ESTHER.

Certainly ; I shall be delighted to have you as a companion.

The two cousins accordingly set out together, and they soon reached the cottage. Nothing could be neater than the appearance which it presented ; the cottage was nicely whitewashed, and its rustic trelliswork porch was covered by a Clematis, which perfumed the air with its fragrance, and intermingled its luxuriant branches with the brilliant flowers of the scarlet runner, which it relieved in beautiful contrast. The stone at the door was white as snow, bearing evidence, with the polished panes of the casement window, to the assiduous attention paid by the inmates to neatness and cleanliness. The garden was in keeping with the cottage, and the disposition of its several compartments showed a careful regard to ornament as well

as utility. It consisted of about a quarter of an acre, as much as a labourer, if engaged in regular work, can find leisure to cultivate properly. The garden was surrounded by a narrow walk, on each side of which was a border of flowers, the centre of the ground being reserved for vegetables. In one corner was the pigsty, neatly screened from observation by a privet hedge; in the other, an arbour framed of osiers which had been suffered to vegetate, and which formed a green background to the China roses that ran over it in wild luxuriance.

Esther tapped at the cottage door, which was opened by a little girl of nine years of age, whose well patched frock was a model of prudent industry. The cousins lost no time in proceeding to the sick-room, where they found the invalid labouring under a severe attack of cold and fever, and evidently in much suffering. She welcomed Esther with manifest delight, for Esther was well known to the poor of the parish, as Mrs. Fortescue loved to make her children her almoners, and early led them to visit the sick and the sorrowful, and to give freely as they had received bountifully.\* Esther was now of an age to impart great comfort and instruction to her poor pensioners, by reading

\* " Freely ye have received, freely give."

and conversing with them upon the Scriptures, by lending them books of hymns, the touching narratives of Legh Richmond, or other such works as were best calculated to awaken their minds to the importance and blessings of the Gospel truths.

MRS. THOMSON.

I thank you very much, Miss Esther, for the book which you lent me; my girl has been reading it to me, and I have learnt some of the hymns by heart.

ESTHER.

Which were they?

MRS. T.

There is one called "Lovest thou me?" and another on prayer; but it would tire you to listen to them.

HENRIETTA.

I should like to hear one.

MRS. T.

"What various hindrances we meet  
In coming to a mercy seat;  
Yet who that knows the worth of pray'r,  
But wishes to be often there?

"Pray'r makes the darken'd cloud withdraw,  
Pray'r climbs the ladder Jacob saw,  
Gives exercise to faith and love,  
Brings every blessing from above.

"Restraining pray'r we cease to fight;  
 Pray'r makes the Christian's armour bright;  
 And Satan trembles when he sees  
 The weakest saint upon his knees.

"Have you no words? Ah! think again,  
 Words flow apace when you complain,  
 And fill your fellow-creature's ear  
 With the sad tale of all your care.

"Were half the breath, thus vainly spent,  
 To Heav'n in supplications sent,  
 Your cheerful song would oft'ner be,  
 Hear what the Lord has done for me."

COWPER.

HENRIETTA.

Thank you, Mrs. Thomson.

MRS. T.

You will find plenty more, Miss, in Miss Esther's book, which you will like; it is a great comfort to me that my girl can read, for I never had any schooling myself when I was young, and I have been often so sorry for it, that I shall take good care to give it to my children.

Esther remained long in earnest conversation with Mrs. Thomson, whom she found in a most happy and desirable state of mind. The interview was improving alike to both parties; for they who are not in the habit of visiting the poor, are little aware how simple and how clear are their views upon religious subjects. Having no other literary pursuits to distract their attention, the Bible is their

sole and constant study, and they thence acquire so intimate a knowledge of the Sacred Writings, and form conclusions so just and so scriptural, that even the most earnest clergyman will freely confess the benefit they have derived from conversing upon the Scriptures with the pious poor, so true it is that good often returns tenfold to the giver, and that "he who watereth shall be watered himself."

After reading a few prayers to Mrs. Thomson, Esther rose to take her leave, unwilling that the sufferer should fatigue herself by talking too much. "This is, indeed, a pleasure," observed Henrietta, "which I never before felt; I hope you will let me accompany you another day in your cottage visits."

On their way out, Esther and Henrietta inspected the garden more closely. Half the ground was occupied by potatoes, while beans, scarlet runners, onions, carrots, turnips, and pot-herbs filled the remainder, each having spaces allotted them, in proportion to their several measures of utility.

#### HENRIETTA.

But what a small piece is left for cabbages! Surely it cannot yield sufficient for Mrs. Thomson's large family, particularly as she keeps a pig?

ESTHER.

You forget that they are not yet all planted; but when the beans are gathered, and the carrots drawn, the cabbages will be placed in the ground now occupied by these, and they will come in succession so as to last throughout the winter. But, look how fine the dahlias are! I am always pleased to see these showy exotics become sufficiently common to decorate a cottage garden.

Marygolds, sweet peas, stocks, lupines, &c., with a few clove carnations ornamented the border, which was edged with thrift and double daisies. An aucuba, with its variegated leaves, grew under the window in which were a few pots, well painted with red lead, and containing a dittany of Crete, a crassula, and some mesembryanthemums, while two stately hollyhocks stood like giant sentinels on either side of the garden gate. In a corner, well sheltered from the rain, and open to the south and west, stood the beehives, — always an important feature in cottage economy, and, in this instance, a fit emblem of the humble industry of its possessors.

HENRIETTA.

But I see no fruit-trees, Esther!



ESTHER.

No ; it would be turning so small a piece of ground to very bad account, were Mrs. Thomson to plant any here, for fruit is a luxury, not like potatoes and cabbages, one of the necessities of life ; and no vegetables will flourish under the shade of fruit trees. Not only do their roots exhaust the soil, but their foliage prevents the free access of air, light, and moisture to the plants beneath them, and thus occasion mildew, and blight, besides the numbers of birds and slugs which are attracted by the fruit. -

HENRIETTA.

I wish every poor person had a garden like Mrs. Thomson's.

ESTHER.

It were indeed much to be desired. A garden takes a labourer but little time to cultivate, and affords him a pleasing occupation in hours which otherwise would probably be ill spent. It is, moreover, a domestic and social employment, for his family can assist in his labours ; his seeds cost him little or nothing, and the produce of a well-cropped garden adds materially to his means of subsistence, and also enables him to keep a pig. In the neighbourhood of large towns, land is so valuable that we see

many cottages built in rows without gardens, and their occupants are consequently compelled to purchase, at a considerable expense, vegetables which it would cost them little to raise. Happily, the exertions of those friendly to the allotment system are fast removing the evil; and although we may not expect, like the French monarch, to see "*la poule au pot*" on every cottage fire; yet we hope the period is not far distant, when every labourer shall possess such a portion of ground as will give him sufficient vegetables for the supply of his family, and for the fattening of a good large pig to cheer his Christmas board.

But here are mamma and the rest of our party who have kindly walked out to meet us.

FREDERICK.

Look, Henrietta, how I have been stung.

MRS. F.

You would almost suppose the sting to have been inflicted by a wasp; but Frederick has been stung by a plant which we call in this country, the May weed (*Anthemis cotula*), every part of which is of so acrid a nature that it blisters the skin if handled, and Frederick, not being aware of its property, has suffered in consequence,

ESTHER.

Mrs. Thomson surprised me the other day by telling me the various purposes to which she applied her honeycomb.

MRS. F.

I should like to hear them.

ESTHER.

The honeycomb being chopped into small pieces, is hung up in a coarse cloth, and the honey is suffered to drain from it without pressing the cloth, which would prevent it from being bright and clear. This honey is sold, and the remainder of the produce is reserved for home use.

The honeycomb is next laid in water for ten days, that it may impart all its remaining honey to the water, which is then boiled, and yeast being added to cause fermentation, it is converted into mead.

The comb is now once more steeped in water, to which it still gives a slight saccharine taste. Of this the careful housewife makes vinegar, not very strong to be sure, but sufficiently so for the less fastidious tastes of those for whose use it is intended.

The honeycomb is then boiled, and as the wax rises to the surface, it is collected and thrown into cold water, after which it is rolled

into sticks, and forms the common yellow beeswax which is sold in the shops.\*

MRS. F.

I had no idea that the industrious cottagers could turn their honey to so great account, although I was aware how profitable a branch it is of cultivation.

HENRIETTA.

How is beeswax whitened for candles?

MRS. F.

By cutting it into thin ribands, and laying it out in the air to bleach. The English beeswax is esteemed the best, but we are chiefly supplied from Russia and Africa.

ESTHER.

Is there any difference between mead and metheglin.

MRS. F.

I believe there is some slight variation in the process by which they are made. Among the Teutonic nations, mead or hydromel was a universal beverage; and the Scandinavian chief, when removed to Valhalla, expected to drink hydromel and beer, and to eat the flesh of the wild boar. Mead has even found its way

\* The above is fact.

into Africa \*, and it probably was the first fermented liquor known to the inhabitants of Britain, with whom it continued to be a favourite beverage long after the introduction of others. The mystery of its production was an important art, for in the courts of the ancient princes of Wales, the meadmaker was the eleventh person in dignity, and took precedence of the physician.†

ESTHER.

I did not know that mice were such enemies to bees, until Mrs. Clifford mentioned to me the other day a circumstance which occurred in her own garden. In May last, her gardener observing that there were no symptoms of movement in one of the hives, and that no bees issued from it, proceeded to examine it, when, to his surprise, he found that a mouse had comfortably established itself in the piece of carpet which he had laid over the top of the hive, to protect the bees from the weather, and that the little thief had feasted upon all the honey the bees being all destroyed. ‡

MRS. F.

In Kirby and Spence's Entomology §, it is

\* Donovan.

† Domestic Life in England. (A very entertaining little work.)

‡ Fact.

§ Vol. ii.

mentioned that the mouse, "especially the field-mouse, in winter, often commits great ravages in a hive, if the base and orifices be not well secured and stopped;" and an instance is given of a person losing all his bees from mice making a nest and producing their young among the combs.

#### ESTHER.

Bees take a singular dislike to particular individuals. Mrs. Clifford tells me that her bees have such an aversion to her gardener, that he cannot even approach the herb-bed near their hives without being stung, and that she was obliged to move them from their old station near the hot-house, as they would not allow him to work in it, unmolested.\*

#### MRS. F.

This man has probably inflicted some injury upon them, either unintentionally or by design, which the bees cannot forget; and their continuing thus so pertinaciously to resent it, shows a considerable degree of recollection in these insects which are, I believe, considered to possess the faculty of memory in an eminent degree; for how can we otherwise account for their regaining their hives without difficulty, when a bee

• Fact.

will sometimes travel six or seven miles from home in search of food.

FREDERICK.

What a curious looking ear this is which I have found in the rye ! It is quite of a purple colour, and here is one almost black.

MRS. F.

This is a specimen of what is called the spurred rye (*Secale cornutum*). In rainy and moist seasons, the rye is very liable to this particular disease, commonly known by the name of *ergot*. In many districts of France \*, where rye forms the principal food of the inhabitants, such a state of the grain is attended with the most fatal consequences, for it is then poisonous and dangerous to eat; many persons die, and others lose their teeth and limbs, in short, the accounts given of the effects of eating the grain in this vitiated state are most frightful.

ESTHER.

By what is it occasioned ?

MRS. F.

Some difficulty exists on the subject, but the disease appears to be produced by a parasitic

\* Particularly at Sologne, near Metz.

fungus (*Spermædia clavus*, D. C.) which grows within the seeds of various graminæ, and subsequently assumes the form of the grain it has destroyed.\*

ESTHER.

That would assimilate it to the rust, smut, mildew and other diseases incident to corn, which are produced by different parasitic fungi.†

MRS. F.

This corn is fit to cut. See how all the ears turn towards the south; there has been no wind to divert them from their natural direction.

HENRIETTA.

What is the cause of their so doing?

MRS. F.

It must be attributed to the same causes which influence the movement of the sunflower. The stalk is soonest dried, and consequently becomes contracted on the side which receives the sun's rays; this causes an inclination of the ear

\* See De Candolle, *Phys. Végétale*, 1454, and the *English Flora*, vol. v. part 2. : —

“ Shield the young harvest from devouring blight,  
The smut's dark poison, and the mildew white;  
Deep-rooted mould, and ergot's horn uncouth,  
And break the canker's desolating tooth.”

† See Chapter XV.



towards the sun: the heavier the head of the flower or grain, the more sensible is this effect, and the greener and more herbaceous the stalk, the more it is acted upon by the influence of the sun's light and heat.\*

FREDERICK.

Aunt, what is this grass which I have just found growing among the corn?

MRS. F.

It is the Darnel (*Lolium temulentum*) one of the worst among the weeds of agriculture, but a plant of some interest to us, since it is supposed that the word translated *tares* in the beautiful parable of our Saviour, should be rendered darnel. The reason assigned for this alteration is plausible. The darnel grows among the corn, and if the seeds remain mixed with the meal, they not only impart a bitter, acrid flavour to the bread, but if left in any considerable quantity, they produce stupor, intoxication, convulsions, and even it is asserted death. In appearance, this poisonous seed much resembles wheat, and travellers mention, that in some parts of Syria the plant is drawn up by the hand, in the time of harvest, along with the wheat, and is then picked out, and bound up in separate bundles to

\* De Candolle, *Phys. Végétale*, 843.

be destroyed. Now, in the parable of the tares \*, our Lord states the very same circumstance. Both grew together; they were not separated by the tillers, but suffered to grow together until the harvest, when the reapers were desired to bind them in bundles and burn them.

#### ESTHER.

Among the various derivations of the name *Lollards*, some trace it to *Lolium* the generic name of the darnel; the Lollards by their heresy, being looked upon as the tares or darnel among the wheat.

#### HENRIETTA.

Aunt, what are the *husks* supposed to have been, which were eaten by the prodigal son?

#### MRS. F.

Bochart, the traveller, thinks they were the pods of the Carob (*Ceratonia siliqua*), which is very common in the Levant, and south of Europe. This tree, which is very handsome, from the beautiful contrast of its dark green pinnated leaves with the small clusters of its scarlet flowers, bears a bean or pod, from six inches to a foot in length, and in such abundance that a single tree will yield from 800 to 900 lbs.

\* St. Matthew, c. xiii. v. 24—30.

of pods. These pods contain flat seeds enveloped in a pulpy fleshy kind of husk, of a sweetish taste, which is considered very nourishing to cattle, and is also eaten in Italy by the people themselves. The fruit of the Carob was found in Herculaneum, and is preserved in the Museum at Naples. At Genoa, great quantities of it are consumed; it is given chiefly to horses, and during the Peninsular war, the horses of the British cavalry were often fed upon these pods.

FREDERICK.

Look, look, aunt, there is a viper !

MRS. F.

Where ?

FREDERICK.

It has glided into the hedge.

MRS. F.

Then I suspect that it was a snake; a viper would not have retreated so quickly, and would probably have coiled round, and reared itself up in an attitude of defence. Had it a black zig-zag line along the whole length of its back?

FREDERICK.

No, it was of a dirty kind of ash green, with a very pointed tail.

MRS. F.

Conclusive evidence that it was a snake, for the tail of the viper is more blunted. When these animals are attacked, they open their mouths, and their little ones run down their throats for refuge until the danger is past. The fact has been related to me by persons who have witnessed it.

FREDERICK.

I saw a quantity of snakes' eggs dug out the other day from a heap of mould and manure, which the men were turning.

MRS. F.

Yes, these animals generally select the warmest places for depositing their eggs, and the fermentation of a manure heap causes it to be one of their most favourite resorts. Our keeper assures me, that the snakes and vipers lying out on the banks is generally a sign of rain.

FREDERICK.

How fierce these animals are when rearing their young ! The bailiff was telling me, the other day, that having accidentally trodden upon a viper, the enraged creature darted at his leg, and bit one of the buttons of his gaiters with such violence, as to break two of its teeth, which

dropped out and fell to the ground. He tells me that vipers are very common about here, and that when the wood-cutters take down the faggots which have been stacked in the woods, they find numbers of them coiled up in knots together.

MRS. F.

Mr. Washington Irving mentions\*, that the rattlesnakes are thus found in great numbers, and that on one occasion, his party fired with guns at a nest of these reptiles which lay coiled together, and that thirty-seven were killed or wounded. He also states that one of the greatest dangers that beset the travellers, was the number of rattlesnakes which infested the rocks, and on which the men were in danger of treading. To prevent any unwelcome visits from them during the night the tents were strewed with tobacco, of which these creatures have a great abhorrence. Rattlesnakes will not unfrequently find their way into dwelling-houses, and I know a lady residing in Vermont, who once found one in the cellar.

FREDERICK.

But your bailiff has been telling me of a man who discovered a viper in a much more singular place, viz. on the top of a tree which he climbed

\* Astoria.

to take the nest of a jay. On putting his hand into the nest to take the eggs, the viper darted forth and bit him so severely, that, to prevent mortification, he was obliged to have his arm taken off.

MRS. F.

Mr. Jesse\*, mentions that snakes have sometimes been found in trees which they contrive to ascend in search of young birds, upon which they feed. They also eat toads; and a snake was killed last summer in the kitchen garden, when in the act of swallowing one of these animals, which appeared so much too large for its throat that it would have had some difficulty in effecting its purpose, if it had not been killed in the mean time.

ESTHER.

What is the best remedy for the bite of a viper?

MRS. F.

In this country the people have still great faith in the oil of the animal, and when a viper is killed, it is immediately flayed and hung up in the sun, and a cup placed underneath to collect the fat which drops from it. This is carefully preserved as a specific against the

\* Gleanings in Natural History. 1st series.

venom; but I believe that the immediate application of sal volatile (ammonia), both internally and externally, is the best remedy that can be used.

FREDERICK.

A gentleman told me, the other day, that he had seen a snake swimming. It swam with a great part of its body out of the water, and moving its tail backwards and forwards, as a paddle; in this manner it crossed a pond. The bailiff tells me, that the way he generally kills a viper is to place his foot upon its head, while he takes out his knife to cut it off.

MRS. F.

In Dorsetshire they have a cruel method, which is this. When they find one of these reptiles, they hold it to the ground by a stick, round which it immediately coils; they then throw the viper and the stick into one of the nests of those large ants which we call horse ants (*Formica rufa*). The viper is immediately beset by the ants and becomes so irritated by their attacks, that it bites itself to death,—the effects of its own venom being as fatal to the animal as are the poisonous juices of plants to the very species which produce them.\* The ants soon

\* De Candolle, 1869.

devour the flesh of the snake and, in a very short time, nothing but the skeleton remains. I found one last summer, of a viper which had only been killed the day before.

FREDERICK.

It is said that at whatever hour a snake has its head cut off, it never dies until sunset.

MRS. F.

The length of time that muscular irritability exists in reptiles, has given rise to this popular prejudice. Some people have a singular facility of capturing snakes and vipers, and I know of a nursery girl at Reigate, who amuses herself, in the summer, by going out upon the Downs, where these animals abound and teasing them until they catch hold of her handkerchief; by then quickly withdrawing it, the sudden jerk extracts the fangs of the viper, and she can soon fill her pocket with these animals, and carry them home in triumph.

FREDERICK.

I know of a little dog which catches both snakes and vipers: during last summer he destroyed upwards of five and twenty. I also heard of the cat of one of our neighbours, coming into her master's room, with a live snake or viper in her mouth: she had caught the crea-



ture so ingeniously by the neck, that it could not turn round to bite her.\*

#### ESTHER.

But it is no new thing for cats to be serpent-hunters. Debrèves, in his travels in the Levant, states that a promontory near Paphos, in the island of Cyprus, is called the "Cape of Cats" to this day. Their memory is thus revered, because the monks of a monastery (the ruins of which are still to be seen) kept a quantity of cats to wage war upon the serpents which infested the island. These cats were so well educated that, at the sound of a bell, they repaired to the abbey, at the hours of meals, and having finished their repast, they returned to their chase, which they pursued with unabated ardour, and with admirable dexterity. When the Turks overran the island, the monastery was reduced to ruins, and the cats shared its downfall, in common with their masters.

#### MRS. F.

But look at that partridge; see how it has been running up close to us, while Esther has been speaking: its brood of little ones must be near, by its anxiety to divert our attention.

\* All the above anecdotes are facts which have occurred under the immediate knowledge of the writer.

FREDERICK.

Yes, aunt; I see it is the hen bird, for it has not the horse-shoe mark upon its breast; look! she is determined not to leave us: she has now settled close to Mary.

MRS. F.

Now she is flying away; I suppose that her young ones have reached a place of safety.

FREDERICK.

Yes, I see them running into the ditch at the further end of the field; how fast the little creatures must have run through the corn!

MRS. F.

The partridge is one of the strongest instances in nature of maternal self-devotion: she will expose herself to the greatest danger, and even to death, in the defence of her young. The year before last, a partridge in our ground had its leg shot off, but it was seen last season with a fine covey of young ones, which the poor thing, notwithstanding the loss of its leg, was able to hatch and rear, and she was to be observed hobbling about with her little brood, almost as actively as if she were still in possession of both her limbs.\*

\* Fact.

HENRIETTA.

Aunt, what is this dead, brownish-looking plant?

MRS. F.

It is the yellow rattle (*Rhinanthus crista-galli*), now gone to seed. In Sweden, the rattling of these seeds in their husky capsules, is the signal for hay-making, but in England we begin when the plant is in flower.

MARY.

I think no flower is prettier than my favourite daisy.

MRS. F.

The daisy is ever associated in our minds with a thousand pleasurable recollections. It is connected with our earliest games, when a daisy garland was our greatest acquisition. Indeed, so familiar a favourite is it to us all, that a writer\* not inaptly styles it "the robin of flowers." Its various names are all expressive of its beauty: *Bellis* in Latin, *Marguerite* in French, (a pearl†) and in English the *Day's Eye*. All the poets delight in the daisy. Burns' address to the "wee modest crimson-tipped flower" we have all read. Clare, the

\* The author of the *Flora Domestica*.

† *Margarita*.

village poet, alludes to it\*, and Chaucer and Wordsworth, never tire of expatiating upon its beauties.

MARY.

And there is Montgomery's little poem to the daisy, which I learned the other day.

MRS. F.

We shall all be glad to hear it.

Mary repeated the following lines : —

“ There is a flower, a little flower,  
With silver crest, and golden eye,  
That welcomes every changing hour,  
And weathers every sky.  
The prouder beauties of the field  
In gay but quick succession shine ;  
Race after race their honours yield,  
They flourish and decline.

“ But this small flower, to Nature dear,  
While moon and stars their courses run,  
Wreathes the whole circle of the year,  
Companion of the Sun.  
It smiles upon the lap of May,  
To sultry August spreads its charms,  
Lights pale October on his way,  
And twines December's arms.

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\* “ Daisies, ye flowers of lowly birth,  
Embroiderers of the carpet earth,  
That stud the velvet sod ;  
Open to spring's refreshing air,  
In sweetest smiling bloom declare  
Your Maker, and my God.”

*Village Minstrel.*

"The purple heath, and golden broom,  
On moory mountains catch the gale;  
O'er lawns the lilies shed perfume,  
The violet in the vale.

But this bold floweret climbs the hill,  
Hides in the forest, haunts the glen,  
Plays on the margin of the rill,  
Peeps round the fox's den.

"Within the garden's cultured round,  
It shares the sweet carnation's bed;  
And blooms in consecrated ground,  
In honour of the dead.

The lambkin crops its crimson gem,  
The wild bee murmurs on its breast,  
The blue fly bends its pensile stem,  
Light o'er the skylark's nest.

"'Tis Flora's page. — In every place,  
In every season fresh and fair,  
It opens with perennial grace,  
And blossoms every where.  
On waste and woodland, rock and plain,  
Its humble buds unbeeded rise;  
The rose has but a summer reign,  
The Daisy never dies."

## CHAPTER XI.

## ON SHEEP.

BISHOP BLAISE, THE PATRON OF THE WOOL-COMBERS. — THE WOOLLEN MANUFACTURE IN ENGLAND. — WOOL THE RANSOM OF QUEEN PHILIPPA'S CROWN. — FELTING PROPERTY OF WOOL. — CARPETS OF THE TARTARS. — SERRATED EDGE OF WOOL. — IRRITATION PRODUCED BY WOOLLENS. — THEIR SHRINKING. — WOOL, HAIR, AND FUR. — DIFFERENT QUALITIES OF WOOL. — LONG AND SHORT WOOL. — SHEEP-FARMING IN NEW SOUTH WALES. — SAXON AND SPANISH MERINO SHEEP. — THE WOOLLEN MANUFACTURE IN SPAIN. — MIGRATIONS OF THE SPANISH FLOCKS. — OF THE SHEEP OF PROVENCE. — ANECDOTE OF A SHEEP SWIMMING. — CHEESES OF ROCHEFORT, ETC. — OF POLYPHEMUS. — A BUFFALO DAIRY IN ITALY. — SNOW STORMS IN THE HIGHLANDS. — EXTRACT FROM THE KTRICK SHEPHERD.

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“ Thus in elder time,  
 The rev'rend Blasius wore his leisure hours,  
 And slumbers broken oft ; till fill'd at length  
 With inspiration, after various thought,  
 And trials manifold, his well-known voice  
 Gather'd the poor, and o'er Vulcanian stones,  
 With tepid lees of oil and spiky comb,  
 Showed how the fleece might stretch to greater length,  
 And cast a glossier whiteness. Wheels went round ;  
 Matrons and maids with songs relieved their toils ;  
 And every loom received the softer yarn.  
 What poor, what widow, Blasius, did not bless  
 Thy teaching hand ? thy bosom like the morn  
 Opening its wealth ? What nation did not seek  
 Of thy new-modelled wool the curious webs ? ”

DYER'S *Fleece*.

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HENRIETTA.

AUNT, who was St. Blaise ?

MRS. F.

He was bishop of a town either in Cappadocia or Armenia, and suffered martyrdom in A. D. 289, under the Emperor Dioclesian, after having been cruelly tortured and lacerated with combs of iron. St. Blaise is the patron saint of the wool-combers, who assign to him the invention of the comb; his effigy is upon the medals or tokens of the wool manufacturers, and is still carried by them in procession in the wool towns of the north of Europe. What part he really had in the improvement of the wool manufacture, it is impossible to say, but the art of combing was introduced into Europe from the East.\*

ESTHER.

Where was the woollen manufacture first established in England?

MRS. F.

It was established at Winchester, by the Romans, soon after their conquest of this country. Some of the English fabrics reached the imperial city, where they were so highly valued, that, in the most luxurious era of the empire, the finest and most expensive robes — those which were used only on days of festivity

\* Brady's *Clavis Calendaria*, vol. i.

or ceremony — were furnished by the British factories. The woollen manufacture continued to extend and flourish; and when, in the time of Richard I. the churches and monasteries were all obliged to give up their plate, as a means of raising the sum required for the ransom of that monarch, those orders who in conformity to their vow of poverty, had no plate, were compelled to contribute one year's wool. Hence it may be inferred that this commodity, next to plate, constituted their principal wealth; that the lands of the religious houses were employed in the growth of wool, and that wool was, after money, the most marketable commodity, and was consequently selected for a purpose like this, which admitted of no delay.

#### ESTHER.

And Edward III. having pawned Queen Philippa's crown, at Cologne, for 2500*l.*, sent over a great number of sacks of wool to redeem it. This king was one of the great promoters of the woollen manufacture, for he invited over the Flemish manufacturers to settle in England.

#### HENRIETTA.

Aunt, I often hear people speak of the felting property of wool, but I do not clearly understand what they mean.



MRS. F.

By the felting property is meant that tendency in the fibres of wool to entangle themselves together; thus forming a mass more or less difficult to unravel. The woolly matted knots, which you sometimes find on the ears of my old spaniel, are an illustration of this quality, and so are also the matted portions of wool which we see upon the backs of the sheep, and which probably first suggested the idea of felting. Although weaving is of the earliest date, yet Pliny speaks of the practice of making cloth by the felting process, (that is, by wetting the wool and submitting it to pressure, by which means it entangled itself into a compact mass,) as continuing even in his time; and the Tartars, to the present day, spread on the floors two or three layers of moistened wool, which they tread under foot for a few hours, thus forming carpets without the aid of machinery.

ESTHER.

What is it that gives the felting property to wool?

MRS. F.

If a small lock of wool be held up to the light, each of its fibres appears to be twisted into numerous minute, corkscrew-like ringlets. These spiral curls contribute materially to the

felting property of wool, but they are not the principal cause of it. The felting property of wool is owing to its serrated fibre, which has been lately discovered by means of a microscope of extraordinary power.

ESTHER.

Will you explain this further?

MRS. F.

It has often been observed, in drawing the filaments of the finest wool through the finger and thumb, in a direction from the root to the extremity, that the surface of the fibre is smooth and polished; but, if the direction be reversed, a little more force is requisite, and it is evident that the filaments are rough or jagged. But until 1835, the serrations of the fibre had not been clearly demonstrated, nor the structure of wool accurately ascertained.

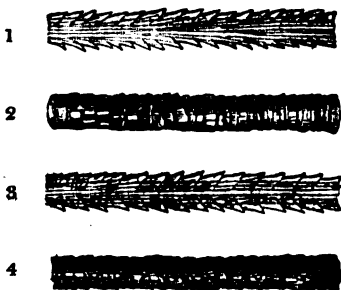
ESTHER.

Then what is the appearance of the woolly fibre, when viewed through a microscope?

MRS. F.

It consists of a semi-transparent central stem, or stalk, from which spring (at different distances in the different kinds of wool) a circlet of leaf-shaped projections, like leaves or scales, which are pointed and indented in different proportions, according to the different varieties of

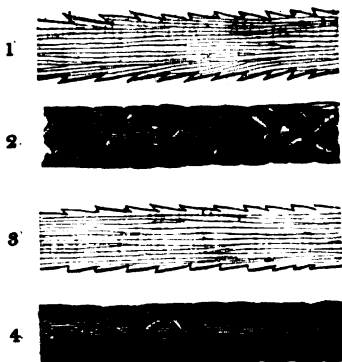
wool. These serrations are most numerous, and the sharpest, in those kinds of wool in which the felting property is greatest. Thus, in the Saxony wool, which for felting is unrivalled, and which is therefore always appropriated to the making of the finest kind of cloth, the number of these serrations amounts to 2720 in an inch, while, in the Leicester, it does not exceed 1860. It is, therefore, clearly established, that the felting property depends upon the number of serrations in the fibre; and, as these can be counted by means of a microscope, the relative value and quality of the different kinds of wool may be immediately ascertained.



## SAXONY WOOL.

1. A fibre of Saxony wool as a transparent object.
2. Ditto, opaque.
3. Ditto, combed, transparent.
4. Ditto, combed, opaque.

M 2



## LEICESTER WOOL.

1. A fibre of Leicester wool, as a transparent object.
2. Ditto, ditto, an opaque one.
3. Ditto, combed, transparent.
4. Ditto, opaque.

(From the volumes on Sheep, in the Farmer's series of the Library of Useful Knowledge.)

## ESTHER.

This serrated fibre accounts for the irritation produced upon the skin by woollen cloths.

## MRS. F.

Yes, the sharp hooked edges of new flannel, until they are worn and broken off, have the effect of carding the skin very much like the teasel of the carder. You recollect our reading

an interesting account of the cultivation of teasel, and its application in dressing cloth.\*

HENRIETTA.

And why do flannels and other woollens shrink when washed?

MRS. F.

Because the pressure of the hand, and the soaking or boiling of the flannel, bring the fibres of the wool into more intimate contact with each other; and they entwine themselves so closely together as to become thickened, shortened, and converted into a kind of felt.

HENRIETTA.

What is the distinction between hair and wool?

ESTHER.

One difference is obvious; viz., the former is comparatively straight, while the latter assumes a spiral curling form; and hair, not being serrated like wool, will not felt, but entangles only to a certain degree.

MRS. F.

You are right, Esther; but even these cha-

\* Journal of a Naturalist, p. 41.

fects are referrible, in a great measure, to the influence of climate and of cultivation, although they are sufficiently distinctive for all practical purposes.

HENRIETTA.

And what is fur ?

MRS. F.

Fur is a mixture of wool and hair : the hare, beaver, rabbit, seal, bear, and others, have all wool as well as hair, varying in different proportions, according to the different degrees of cold to which the animal is exposed. Thus the weather and climate have great influence over the quality and value of furs ; and the same species of animals that, in Russia, Siberia, and North America, produce the most valuable and beautiful furs, have nothing, in the warmer climates, but a coarse and thin covering of hair.

ESTHER.

Is there not a great difference in the quality of wool off the same sheep ?

MRS. F.

Yes ; a woolstapler will sometimes separate from six to ten, and even as many as fourteen, different descriptions of wool off the same fleece ; which, by habit, he is able to assort into the different baskets around him with the greatest

accuracy. The manufacturer is thus enabled to obtain from the stapler, without any trouble, the exact quality which he requires for his purpose.

ESTHER.

I hear farmers talk of long and short wool, mamma; to what do they refer?

MRS. F.

Long wool, or combing wool, is used for the manufacture of hard yarn, worsted goods, and hosiery; short wool, or clothing wool, for the making of cloth, flannels, and fine stuff. The Leicester, Lincoln, and Romney Marsh sheep afford the long wool, while the short wool is produced by the Southdown sheep, the Cheviot, and some others. The superiority of the British long wool is unrivalled; but, in short wool, the British fleeces must yield to the German, Merino, and Australian sheep. The long wool averages about eight inches in length, the short two and a half.

ESTHER.

Sheep farming is becoming one of the great sources of wealth to New South Wales.

MRS. F.

Yes; it now constitutes the chief employment

of the Australian settler. Independently of the enormous flocks of the Australian Wool Company, several individuals possess from 15,000 to 20,000 sheep. These are divided into flocks of a size proportioned to the locality. In the level country, one shepherd and his dogs will take care of 1000 sheep, while, in the more woody and irregular districts, 350 sheep are considered a sufficient charge for one person. The wild dogs are the greatest enemies which the shepherd has to contend with; and so daring are these animals, that they will sometimes attack a flock in open day.

ESTHER.

What is the nature of the Australian wool?

MRS. F.

It is very soft and silky; and though not so valuable as the Saxony wool, yet it is more esteemed than the Spanish Merino.

ESTHER.

Of what kind are the Saxony sheep?

MRS. F.

They are Merino sheep, which were imported from Spain by the Elector in 1765, at the close of the seven years' war; and, through the exertions of the government, they have become



a principal source of the wealth of that country; and the Saxony wool now surpasses the Spanish in fineness and value.

ESTHER.

But there must be some difference in the temperature of the two countries?

MRS. F.

True; but one of the chief advantages of the Merino sheep is their power of resisting the extremes of climate. They thrive, and retain their fineness of wool, under a tropical sun, or in the bleak regions of the north; and we find them in equal purity at the Cape of Good Hope, in Australia, in the marshes of Holland, and under the rigorous climate of Sweden.

ESTHER.

Spain has long been celebrated for its woollen manufactures.

MRS. F.

Yes; agriculture was the favourite pursuit of the Roman colonists in Spain; and the improvement of their sheep was an object of great consideration.\* When the Saracens, in-

\* The fleeces of the sheep pastured on the banks of the Guadalquivir had a reddish hue. Thus we read of—

“Garments of that innate stain  
That wool imbibes on Guadalquivir’s plain.”

vaded Spain, in the eighth century, they found the country covered with flocks and herds; and the luxury of the Moorish sovereigns gave such encouragement to the woollen manufacture, that, at a time when it was scarcely known in Europe, Seville alone had 16,000 looms. The prosperity of the manufacture continued to increase; and the greater part of Europe, and the coast of Africa, were supplied with woollens from Spain, until the expulsion of the Saracens, which caused the decline of the manufacture.

HENRIETTA.

When did that event take place?

MRS. F.

Ferdinand of Aragon banished nearly 100,000 of these industrious people: Philip III. drove from Valencia more than 140,000 of the Mahomedan inhabitants; and, in the three following years, 600,000 more were expelled from Murcia, Seville, and Granada. The majority of these people were artisans — many weavers; and the natural consequence was, that the 16,000 looms of Seville dwindled to sixty, and the woollen manufacture almost ceased to exist throughout Spain.

ESTHER.

I have heard that the Spanish sheep are migratory.

MRS. F.

Yes; the account of the Spanish mode of sheep farming is curious, and I will, therefore, describe it to you. The sheep are divided into two classes; the *estantes*, or stationary, and the *transhumantes*, or migratory; but we will only refer to the latter, as it is from them that so many countries have been enriched. These sheep pass the summer in the mountains of the north, and the winter in the plains towards the south, of Spain. Suppose, Frederick, that you get the atlas; for you will have occasion to refer to it when I describe the route of the sheep. They may be divided into two immense flocks or classes, the Leonese and the Sorian.

The Leonese, after having wintered in Estremadura, on the north bank of the Guadiana, begin their march, about the middle of April, in divisions of from 2000 to 3000. They pass the Tagus at Almaraz, and direct their course towards Tre Casas, Alfaro, and L'Epina, where they are shorn.

FREDERICK.

This operation detains them, I suppose, some time?

MRS. F.

On the contrary, it is very quickly performed, as there are so many shearers at these

stations that 1000 sheep are shorn in a day. Sheep-shearing being completed, the flocks continue their travels towards the kingdom of Leon. Some halt on the sierra, or ridge, which separates Old from New Castile; but others pursue their journey until they reach the pastures of Cervera, near Aguilar del Campo. Here they graze until the end of September, when they commence their return to Estremadura. Such is the route of the Leonese division.

FREDERICK.

I have traced it on the map, aunt.

MRS. F.

Then I will now give you the line of march of the Sorian flock.

Having passed the winter on the confines of Estremadura, Andalusia, and New Castile, they begin their route about the same time as the Leonese division. They pass the Tago at Talavera, and approach Madrid: thence they proceed to Soria (in Old Castile); when a portion of them are distributed over the neighbouring mountains, while the others cross the Ebro, in order to proceed to the Pyrenees.

These periodical journeys can be traced back to the middle of the fourteenth century, when a tribunal was established for their regulation. It was called the *mesta*, and consisted of the

chief proprietors of these migratory flocks. The mesta established a right to graze on all the open and common land that lay in the way: it claimed, also, for the flocks, a path ninety yards wide, through all the enclosed and cultivated country; and it prohibited all persons, even foot-passengers, from travelling on these roads when the sheep were in motion. Such were the arbitrary regulations enacted by this tribunal.

ESTHER.

What is the particular object of these migrations?

MRS. F.

They are made under the idea that, by thus moving the sheep, they are kept in very nearly an equal temperature during the whole year; but it is very doubtful whether the end proposed be effected. The inconveniences attending these migrations are incalculable. Each journey, of 400 miles, occupies about six weeks, so that a quarter of the year is consumed in travelling. Much damage is done to the country over which these immense flocks are passing, particularly as the migrations take place at those times of the year when the property of the agriculturist is most liable to injury; in the spring, when the corn

has attained a considerable height, and in the autumn, when the vines are laden with grapes.

ESTHER.

What is the supposed number of these flocks?

MRS. F.

The number of migratory sheep is estimated at 10,000,000. They are divided into smaller flocks, each of which is under the care of a *mayoral*, or chief shepherd, who precedes the flock under his charge. Several of the sheep are so tame that they follow the *mayoral*, and the others obey their movements. There is no driving, all follow their leader; and the other shepherds are stationed with the dogs about the flocks, to defend them from the attacks of the wolves, which uniformly migrate with them. The sheep are as well aware as the shepherds when they approach the end of their journey; and it is necessary to use great vigilance over the flock, during the last three or four days, to prevent their escape, when they would inevitably become a prey to the wolves. When April again approaches, the sheep exhibit equal impatience to set out on their migrations.

FREDERICK.

What a number of shepherds must be necessary?

MRS. F.

It is supposed that 40,000 or 50,000 shepherds are employed in these peregrinations; and the number of dogs kept for guarding the sheep exceeds 30,000.

ESTHER.

To whom do all these sheep belong?

MRS. F.

To different large proprietors. The *Escorial*, which is supposed to produce the finest wool of all the migratory sheep, formerly belonged to the crown; and the *Paular*, the *Negretti*, *Infantado*, &c., to different noblemen or religious bodies.

ESTHER.

The French have, also, migratory flocks in Provence. In May, they are driven from the plains of Arles, and the delta of the Rhone, towards the Alps which divide Provence and Dauphiné from Italy, mostly in the direction of Gap and Barcelonette. This migration is not only sanctioned by custom, from time immemorial, but the sheep are assigned by law a road thirty-six feet wide. The flocks are collected together, and driven in troops of from 10,000 to 40,000. To every 1000 sheep, three shepherds, and as many dogs, are allowed. One shepherd is chosen by the others to

direct the march, and to regulate the affairs of the company. The sheep are led by goats trained for the purpose. These animals wear bells round their necks, and implicitly obey the directions of the shepherd: they halt or proceed as he commands, come close to the centre at the end of each day's march, and there wait in the morning until the order is given, when each goat repairs to his station, at the head of the troop, with the greatest regularity. On arriving at a stream, the goats halt until the word of command is given, and then plunge into the water, and are followed by the rest of the flock. The journey usually lasts from twenty to thirty days. In November the sheep return to their winter quarters.

FREDERICK.

But, aunt, I did not know that sheep would swim.

MRS. F.

Generally they do not; for in many of the large sheep pastures, such as Romney Marsh, ditches or dykes form the only boundary between the flocks of the different proprietors. I know, however, of a curious instance of a sheep swimming, which was related to me by the person to whom it belonged. This animal, which was one of the broad-tailed species, from



the Cape of Good Hope, had made several voyages with its master, the captain of a vessel. On the arrival of the ship at Portsmouth, the captain, thinking that the sheep would enjoy a green pasture, after its long confinement upon dry food, turned it out in a field near the harbour; but the sheep had hardly been ashore a day before it made its escape, plunged into the water, and swam back to the ship, which it regained in safety.\*

FREDERICK.

How very curious !

ESTHER.

Do not the French make cheese from ewe's milk ?

MRS. F.

Yes; the little cheeses of Montpelier, and those manufactured in the Basses Pyrénées, are made from ewe's milk; so are those made in the island of the Texel †; but the most celebrated of these productions is the cheese of Rochefort. In England, cheese was thus commonly made until the last century; and the practice still continues in Wales, and in the Highlands of Scotland.

P. Fact.

† This island is celebrated for its race of sheep. The cheese is of a greenish colour. (Hand-book, p. 57.)

FREDERICK.

In the *Odyssey* we read of ewe's milk cheese. Homer gives us a long account of the sheep of Polyphemus, and of the process of making cheese \*; Virgil also alludes to it. †

MRS. F.

The Italians make buffalo cheese, which is, I believe, very disagreeable. I have heard a buffalo dairy described by a person who had visited one of these farms, in the neighbourhood of Naples. All the milk, he said, was poured into an enormous tub, and placed in the chimney-corner, close to the fire, in order to accelerate the rising of the cream; but he assured me that the smell of the milk was much too unpleasant for him to venture upon tasting the cheese.

ESTHER.

How dreadfully the Highland sheep sometimes suffer from the snow-storms.

MRS. F.

Hogg, in his "*Shepherd's Calendar*," gives an interesting description of these fearful visitations; but I particularly recollect an anecdote he relates of the sagacity of a sheep-dog. One of these snow-storms had buried 340 sheep from

\* *Odyssey*, b. 9.† *Georgic* 2.

six to eight feet deep, and over a tract of at least 100 acres. The shepherds endeavoured, but with little success, to find their sheep by boring with long poles in the snow: at length a white shaggy sheep-dog, named Sparkie, appeared to comprehend their perplexity; for he began to scrape the snow, and looked over his shoulder to the shepherds, as if to invite their attention. On digging at the spot he pointed out, they found that a sheep lay buried there; upon which the dog flew to another, and then to another, marking the places much more quickly than they could disinter the sheep; for he was sometimes twenty or thirty holes in advance. Before the snow went away, they got out, by the exertions of Sparkie, all the sheep on the farm, excepting four; and it was not his fault that these were not extricated; for, though they were buried beneath a mountain of snow, fifty feet deep, he had again and again marked the spot where they were to be found.

FREDERICK.

What a clever dog !

MRS. F.

We cannot better close our conversation, than by extracting from the same author his beautiful picture of the Highland shepherd.

“ I know of no scene so impressive as that of a shepherd's family, sequestered in a lone glen, during the time of a winter-storm. There they are left to the protection of Heaven alone, and they know and feel it. Before retiring to rest, the shepherd uniformly goes out to examine the state of the weather, and make his report to the little dependent group within. Nothing is to be seen but the conflict of the elements, nor heard, but the raging of the storm. Then they all kneel around him, while he recommends them to the protection of Heaven ; and though their little hymn of praise can scarcely be heard even by themselves, and mixes with the roar of the tempest, they never fail to rise from their devotions with their spirits cheered, and their confidence renewed. Often have I been a sharer in such scenes, and never, in my youngest years, without having my heart deeply impressed. We lived, as it were, inmates of the cloud and the storm, but we stood in relationship to Him who directed and governed them.”

## CHAPTER XII.

## THE CROSS.

THE ILLUMINATED CROSS AT ST. PETER'S. — THE CROSS OF ST. CHARLES AT MILAN. — OF ST. AUGUSTINE. — THEODOSIUS SURMOUNTS THE GLOBE WITH A CROSS. — LABARUM OF CONSTANTINE. — MONOGRAM. — GREEK CROSS. — RED CROSS OF ENGLAND. — ARMS OF KING ARTHUR. — CROSSES OF THE CRUSADERS. — FORMS OF THE CROSS. — BANNER OF THE SPANISH INQUISITION. — CROSS OF ST. JAMES AT COMPOSTELLA. — THE WHITELEAF CROSS. — INITIAL LETTERS ON THE CROSS. — THE CROSS ERECTED BY COLUMBUS. — THE CROSS A SANCTUARY. — MARKET CROSSES. — THE CROSS OF EDINBURGH. — ST. PAUL'S CROSS. — CROSSES OF QUEEN ELEANOR. — CROSS ON THE TOMBS OF THE EARLY CHRISTIANS. — MORTUARY CROSSES. — CHURCHYARD AT ZUG. — ALPINE CROSSES. — FORM OF CHURCHES. — THE ROOD. — THE CROSS ON BREAD. — THE CRUCIFIX OF MARY, QUEEN OF SCOTS — OF JOAN OF ARC — AND OF THE CHEVALIER BAYARD. — THE RED OF PENITENCE. — CONSTELLATION OF THE CROSS. — EXTRACTS FROM DE HUMBOLDT AND MONTGOMERY.

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“Immanuel's cross,  
The ensign of the gospel, blazing round  
Immortal truth.” POLLOCK.

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## ESTHER.

MAMMA, did you ever see the illuminated cross in St. Peter's?

MRS. F.

No; it is exhibited only on two evenings of the Easter week, and I have never been at Rome at that period.

HENRIETTA.

I never heard of it, aunt; will you describe it to us?

MRS. F.

This cross is about twenty-four feet high, and is covered with brass plates, upon which are fixed about a hundred and twenty lamps. At one period during the service, all the other lights in the church are extinguished, and this single illuminated cross, suspended from the cupola, and blazing forth in the midst of darkness, has a most grand and imposing effect.

ESTHER.

When the pope goes in procession, the cross is always carried before him.

MRS. F.

Yes; this custom is most ancient, for it dates from St. Sylvester; some indeed trace it as far back as Clement I., or about seventy years after St. Peter.\* The cross is also carried before

\* See page 21.

bishops. In the cathedral of Milan is preserved the cross which was borne in procession before St. Charles Borromeo, during the plague of 1576\* ; and Wolsey, in his progresses throughout the kingdom, had a large cross carried before him. We also read of St. Augustine, that, when he arrived in this country, and was summoned to appear before King Ethelbert, he approached the royal presence armed, not with "magical art," as the king anticipated, but bearing before him a large silver cross, and a picture of our Saviour, painted upon a board. Thus did this ensign of the gospel every where accompany Christianity; and, as earthly kings and magistrates bear with them the emblems of their authority, so does the church carry with her the banner under which she fights — the symbol of her salvation.

#### ESTHER.

Theodosius was the first emperor who used the globe surmounted by the cross, similar to the "orb," which is always placed at the coronation in the left hand of the English sovereign.

#### MRS. F.

He was, Esther. The globe had long been a favourite emblem with the Roman emperors; some of whom surmounted it with a figure of

\* See Chapter XVII.

victory; others with the imperial eagle, and the family of Constantine with a phoenix; but the emperor Theodosius substituted the cross, intimating thereby, the triumph of Christianity over the whole world. I need hardly allude to the vision and victory \* of his predecessor Constantine, under whom the cross first became triumphant in the eastern empire, and who placed the Christian symbol upon his crown and sceptre, for we have read together the account of his conversion, as quoted from Eusebius.

ESTHER.

And also the history of the *Labarum*, or sacred banner, which he caused to be made.

HENRIETTA.

What was that Esther?

ESTHER.

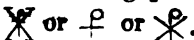
It is described as a long spear, plated with gold, having a transverse beam at the top, in the form of a cross: to this was fastened a square purple banner, highly enriched with gold and precious stones: near its summit was a picture of the emperor and his sons. Above the cross stood a crown, within which was placed the

\* About A. D. 336, at Sinzig, the ancient Sentinensis, in Rhenish Prussia, where the Empress Helena founded the first Christian church.



symbol, viz., the two first letters of Christ's name in Greek, X and P.

## MRS. P.

This monogram is constantly found in ancient monuments variously delineated, the one letter being placed through the other, as thus, . The safety of the labarum, or standard of the cross, was entrusted to fifty guards of approved valour and fidelity; and the sight of the consecrated banner animated the soldiers with enthusiasm, and scattered dismay through the ranks of the enemy. The Christian emperors displayed, in all their military expeditions, the standard of the cross; but, when the degenerate successors of Theodosius had ceased to appear in person at the head of their armies, the labarum was deposited, as a venerable relic, in the palace of Constantinople.\* Constantine caused the cross to be engraved on the shields and helmets of his soldiers; and Theodosius seems to have given a final blow to Paganism when, about A. D. 426, he forbade all pagan ceremonies, and commanded that the cross should be placed in any of the pagan temples which were still standing.

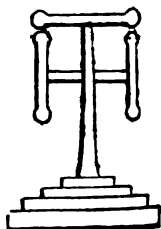
## ESTHER.

What is the origin of the Greek cross, mamma?

\* Gibbon, chapter xx

MRS. F.

It is the cross as represented on the coins of Justinian, who modified it into the form which is peculiarly called the Greek cross, and which represents the three crosses of the crucifixion; that of our Saviour in the middle, and those of the malefactors on each side, thus.



ESTHER.

I suppose it is from the crusades that we must date the adoption of the cross into the banners of, I believe, every country in Christian Europe?

FREDERICK.

The red cross of England, I conclude, was then introduced.

MRS. F.

Some writers assign to our red cross even an earlier date; but King Arthur does not appear to have used it; for we read that "he left his armes which he bare before, wherein was figured three dragons, and assumed, or took to his armes, . . . a crosse silver in a field vert; and on the first quarter thereof was figured an

image of oure ladye, with her sonne in her armes. And bearing that signe he did many marveiles in armes; as in his bookes of actes and valiant conquestes are remembered."

HENRIETTA.

Where was the cross generally worn by the crusaders?

MRS. F.

In imitation of our Saviour, who bore the cross to the place of execution upon his shoulders, the cross was usually worn on the right shoulder, or on the upper part of the back, and it was frequently fixed upon the top of the arm. The pilgrims, on their return from the holy-land, generally placed the cross upon their backs. Some of the crusaders cut the holy sign upon the flesh itself.—

"And on his breast a bloodie cross he bore,  
The dear remembrance of his dying Lord,  
For whose sweete sake that glorious badge he wore,  
And dead, as living, ever him ador'd;  
Upon his shield the like was also scored,  
For soveraign hope which in his help he had." \*

HENRIETTA.

What were the usual colours of the crusaders' crosses?

\* Spenser.

MRS. F.

Red was for a long while, even until the time of our Richard I., the general colour of the cross. It was with crosses of red cloth that pope Martin II. invested the first crusaders at the council of Clermont \* ; while at the meeting of Vezelai †, when Louis VII. engaged in the holy wars, St. Bernard, having exhausted the store of crosses which he had brought with him, tore his simple garment into small pieces, and affixed them to the shoulders of his kneeling converts. At the meeting which took place at Gisors, between Henry II. and Philip Augustus, in 1188, when these two monarchs agreed upon the third crusade, it was arranged that the French should wear a red cross, the English a white, and the Flemish a green. Henry died the following year ; but the crusade was undertaken by Richard I., in conjunction with Philip, and the veteran emperor Frederick Barbarossa. ‡

\* A. D. 1095.

† A. D. 1146.

‡ He was seventy years of age when he set out on this crusade ; the blind Dandolo was ninety-four at the siege of Zara, and Hermauric, the king of the Ostrogoths, during the Gothic war in the reign of Valens, carried on his exploits between the age of eighty and a hundred and ten. The advanced age at which some men have begun their studies is no less remarkable. Cato learned Greek at eighty, and Plutarch began Latin when almost as advanced in life. Theophrastus began his work on the characters of men at the age of ninety. Dr. Johnson commenced the Dutch language a few years before his death. Franklin first entered upon his philosophical pursuits at fifty ; and Socrates began to learn music in his old age.

Writers, however, differ with regard to the colours of the national crosses; for another author\* gives them as follows: "The Scots carried St. Andrew's cross," which, you know, is white; "the French, a cross argent; the English, a cross or; the Germans, sable; the Italians, azure; the Spaniards, gules." —

" There, armed and mounted, goes the pilgrim knight,  
 To meet the Saracen in Acre's field :  
 The cross is on his shoulder and his shield,  
 And on his banner and his helmet bright :  
 He knoweth not to truckle nor to yield,  
 But valiantly for his dear Lord to fight ;  
 For on his heart is this high purpose sealed,  
 To see Jerusalem ; O glorious sight !  
 To quench his thirst at Silee's sacred fount ;  
 To bathe in Jordan's stream without control,  
 To stand on Calvary's thrice honoured mount,  
 And there the standard of the cross unrol ;  
 On that blest spot those sufferings to recount  
 Which he endured who died to save his sinful soul."†

## ESTHER.

And what were the colours of the crosses of the different religious orders?

## MRS. F.

The Teutonic knights wore a black cross embroidered with gold; the knights of St. John, a white cross; the Templars, a red cross; and the knights of St. Lazarus, who were under the

\* Mackenzy.

† Cruciana. An interesting work upon the cross, from which much of the above information is derived.

protection of the king of Jerusalem, wore a green cross.\*

ESTHER.

What a variety of forms of the cross we find in heraldry!

MRS. F.

Yes; as many as forty-six are enumerated by some authors.

ESTHER.

I met, the other day, with a representation of the banner of the Spanish Inquisition. Upon it, is a wooden cross, full of knots, having a sword on one side, and an olive branch on the other, with the circumscription "*Exurge Domine, et judica causam tuam,*" the translation of which is "Arise, O God! plead thine own cause."

MRS. F.

Speaking of Spanish crosses, one of the most celebrated in Spain is that in the church of St. James, at Compostella. This cross is erected upon a platform of stone; and pilgrims are expected to pass under it through a small hole, with their breasts against the pavement; an operation which cannot be performed without some suffering and much difficulty.

\* Mills's History of the Crusades.

ESTHER

Mamma, did you ever see the white cross in Buckinghamshire ?

MRS. F.

No; but I have read a description of it. It is near the hamlet of Whiteleaf, and is cut on a high and steep chalky hill facing the south-west. "The perpendicular line of the cross is nearly a hundred feet in length, and about fifty in breadth at the bottom, but decreasing upwards to nearly twenty feet. The transverse line is about seventy feet in length, and twelve in breadth, and the trench cut in the chalk is from two to three feet deep. This stupendous cross is said to be discernible at a distance of thirty miles."



CROSS AT WHITELEAF, BUCKS.  
From an engraving in "Cruciana."

## ESTHER.

Then it is a monument of a somewhat similar description to the celebrated white horse in Berkshire, which you told us is attributed to Alfred.\*

## MRS. F.

Both are considered as emblems of triumph, and are regarded as the work of about the same age; but, as history does not bear out the supposition of its being the work of Alfred, an antiquary†, with more plausibility, regards it as being formed by Alfred's son, Edward the Elder; and thinks it was executed in commemoration of a victory gained by him near the spot, in 905.

## HENRIETTA.

Pray, what is the meaning of the letters we so often see on the cross in paintings and upon our Bibles?

## MRS. F.

You allude, I suppose, to I. N. R. I., which are the initial letters of the Latin superscription "*Jesus Nazareus Rex Judæorum*," i. e. Jesus of Nazareth, King of the Jews. We also often see on crucifixes, &c., I. H. C., which implies

\* See First Series, Chapter XIV.

† Dr. Wae.



*"Jesus Humanitatis Consolator,"* Jesus the Consoler of Mankind; and sometimes I. H. S., *"Jesus Hominum Salvator,"* or Jesus the Saviour of Men.

#### ESTHER.

Crosses were in very early use for marking the boundaries of land. It was also the practice of some of the discoverers, on landing upon any new territory, to erect a cross. I recollect that Robertson mentions such to have been the case with Columbus. When he set foot in the New World which he discovered, he caused a crucifix to be erected; and he and his followers, prostrating themselves before it, returned thanks to the Almighty for conducting their voyage to such a happy issue.

#### MRS. F.

It were endless to enumerate the various uses to which the piety of man has applied this memorial of redeeming love. In Catholic countries, crosses on the road are endowed with the privilege of sanctuary; and any person who flies to a cross remains as free from molestation as if he had sought refuge in the church itself. Many of our towns used to have their market crosses, the general intent of which "was to excite public

homage to the religion of Christ crucified\*, and to inspire men with a sense of morality and piety amidst the ordinary transactions of life." From the steps of these crosses proclamations were formerly issued; and from them, too, during the Protectorate, bans of marriage were ordered to be published.

## ESTHER.

In *Marmion*, Sir Walter Scott alludes to the demolition of the cross of Edinburgh. †

"Dun-Edin's Cross — a pillar'd stone—  
Rose on a turret octagon;  
But now is razed that monument  
Whence royal edict rang,  
And voice of Scotland's law was sent  
In glorious trumpet clang."

## MRS. F.

Then there were the preaching crosses, the most famous of which, in England, was the celebrated St. Paul's cross, in London. This cross was not only used for the religious instruction of the people, by the voice of the preacher, but for every purpose, political as well as ecclesiastical. Here oaths of allegiance were taken, papal bulls promulgated, penances performed, and statutes and ordinances read.

"That holy crosse, whence thy salvation came,  
On which thy Saviour and thy sin did die."

Worrox

† In 1756.

ESTHER.

Has it been long destroyed?

MRS. F.

This cross, of which we find the first mention in the reign of Henry III., was demolished; in 1643, by order of parliament.

HENRIETTA.

You have not mentioned Charing Cross, aunt.

MRS. F.

No; because we have not yet alluded to memorial crosses, among which those erected by king Edward are the most celebrated. Of these there were originally fifteen, but now only three are remaining; viz., those at Geddington, Northampton, and Waltham. That at Charing Cross was destroyed during the civil wars of Charles I., and stood where the present statue of that king (the first equestrian statue executed in England) was subsequently placed. This brings us to one of the most frequent applications of the cross—the mortuary cross, or memorial of the dead. In the catacombs of Rome and Naples, a cross, or the sacred monogram \*, indicates the tombs

\* See page 265.

of the early Christians; and the wooden cross, with the garland of "*immortelles*," is familiar to every one who has visited Père la Chaise, or any other burying ground in a Catholic country:—

"With cross and garland o'er a quiet grave."\*

ESTHER.

The Russians, also, erect wooden crosses over the dead.

MRS. F.

And Southey beautifully describes a similar memorial:—

"A stone cross  
 Stood on Cynetha's grave, sole monument  
 Beneath a single cocoa, whose straight trunk  
 Rose like an obelisk, and waved on high  
 Its palmy plumage, green and never sera."

I recollect, when we were in Switzerland, being particularly struck with the churchyard at Zug. The graves are planted with flowers, and at the head of each is an iron cross, gilt, and decorated with little paintings. The effect is very striking and pretty. Bénitiers are placed about the cemetery; and, when we were leaving the church, the Swiss girl who accompanied us ran back, apologising for her absence, as she was going, she said, "*jeter de l'eau*

\* Byron's *Manfred*.

bénite sur le tombeau de sa mère;" a tribute of filial piety, which, sanctioned by her erroneous church, she never failed to pay to the memory of her departed parent.

In the Alpine passes, rude wooden crosses are often placed at intervals along the road, to indicate the direction of the road when obliterated by the snow; but we also frequently find them, in the midst of the magnificence of mountain scenery, erected as the chronicles of death; memorials of the destruction of an individual, either from the overpowering avalanche, or from the murderer's knife. On these crosses are inscribed the simple initials of the individual, and the date of the accident, preceded by the letters P. I., or, as it is sometimes carved at length on the cross, "*Perit ici.*"

" And here and there, as up the crag you spring,  
Mark many rude-carved crosses near the path;  
Yet deem not these devotion's offering —  
These are memorials frail of murderous wrath;  
For wheresoe'er the shrieking victim hath  
Poured forth his blood beneath the assassin's knife,  
Some hand erects a cross of mouldering lath;  
And grove and glen with thousands such are rife  
Throughout this purple land, where law secures not life."\*

#### ESTHER.

When were churches first built in the form  
of a cross?

\* Childs Harold, Canto i.

MRS. F.

That does not appear. "In contradistinction to the heathen temples, which were usually circular, the form adopted by the early Christians for their ecclesiastical buildings was generally an oblong, in allusion, it has been said, to the shape of a ship; to remind those who worshipped therein, that as Noah and his family, by Divine favour, were saved in the first ark from the consequences of that flood which drowned the whole world, so they, having entered into the ark of the gospel, through the privileges of a new covenant, were fellow-passengers on the ocean of life, and sailing in safety from this world to a better—voyagers from time to eternity!" Be this as it may, the simple parallelogram was, in process of time, intersected by a short limb, and arranged, according to the modern disposition, in the form of a cross.

ESTHER.

Does not the word rood signify a cross?  
as Southey says, —

" But who can gaze  
Upon that other form, which on the rood  
In agony is stretched ? "

MRS. F.

Yes; from this, Holyrood House derives its

name. The rood anciently used in our churches was a carved or sculptured group, consisting of our Saviour on the cross, accompanied by the Virgin Mary on one side, and St. John on the other; though sometimes, for these last, the four evangelists were substituted, or the patron saint of the place was added. This group was placed in a gallery at the entrance of the chancel or choir, hence called the roodloft. In this loft the musicians were also stationed; and when, at the Reformation, these roods were taken down, the place which they had occupied was used as the organ-loft or singing-gallery, as we see in many of our churches at present.

## ESTHER.

The early Christians used to sign their bread with the cross.

## MRS. F.

The custom is alluded to by St. Athanasius, who says, "when thou art set down at table, and beginning to break thy bread, having signed it with the sign of the cross, give thanks." The cross is still sometimes marked upon the household loaf, when put into the oven; and the "hot cross bun" of Good Friday is the most popular remnant of the Roman Catholic

religion in England which the Reformation has left.

HENRIETTA.

You have not yet alluded, aunt, to the Roman Catholic crucifix.

MRS. F.

No; we are now come to the last use of this sacred symbol, this awful instrument of the Saviour's suffering, upon which he triumphed over death and the grave—a use which, begun “in pious condescension to the weakness of man, ended in confirming that weakness, and substituting a superstition almost heathen for the spiritual doctrine of Christianity.”\* The crucifix, which was first introduced to teach religion through the senses, among those whom it was not deemed expedient to enlighten sufficiently to receive it through the understanding, has thus brought about, as a natural consequence, that

“Salvation's symbol oftener is adored.

Than he who wrought salvation—Christ, the Lord.”

The Roman Catholics place the image of our crucified Lord before the dying person, that his last looks may be directed to this emblem of

\* Milman's Life of Christ.



hope and mercy; and we find, from history, how indispensable the crucifix was always held at these times.

The unfortunate Mary Queen of Scots carried a crucifix with her to the scaffold; and ended her prayer by these words, "Even as thy armes, O Jesus, were spread here upon the crosse, so receive me into thy armes of mercy, and forgive me all my sinnes."

And the Maid of Orleans, at her death, when every form of horror was accumulated, begged the indulgence of a crucifix. An Englishman broke a stick in two parts, and made a cross: the Maid took it, kissed it, pressed it to her bosom, and mounted the pile.

#### ESTHER.

And we find a parallel instance in the death of the Chevalier Bayard, as given by Robertson. "Being unable to continue long on horseback, he ordered one of his attendants to place him under a tree, with his face towards the enemy; then, fixing his eyes on the guard of his sword, which he held up instead of a cross, he addressed his prayers to God; and in this posture, which became his character both as a soldier and a Christian, he calmly awaited the approach of death."

MRS. F.

It was not uncommon, in the early ages, when the hour of dissolution approached, to scatter upon the floor of the church, or elsewhere, a quantity of ashes in the form of a cross, upon which straw was sometimes laid as a bed for the dying man. Occasionally sackcloth was substituted for straw, and thus strewn with ashes. Not only churchmen, but the laity, also, observed this practice. It was termed a "bed of penitence." Upon such a bed expired two kings of France, Louis VI. and Louis IX.; and on a bed of penitence, also, did Henry III. of England breathe his last.

HENRIETTA.

Is there not a constellation called the cross?

ESTHER.

Yes; it consists of five stars, four of which form the cross; and the most northerly and southerly are always in a line with the south pole. They are, therefore, the pointers for discerning in the southern hemisphere the southern pole, as the two stars, which are so called in the great bear, point out the northern pole.

MRS. F.

Give me De Humboldt, and I will read you

his account of this constellation, the symbol of redemption, so "fitly characterized with stars, in Heaven;" that "venerabile signo" of which Dante also makes mention. \*

"The pleasure felt on discovering the southern cross was warmly shared by such of the crew as had lived in the colonies. In the solitude of the seas, we hail a star as a friend from whom we have long been separated. Among the Portuguese and Spaniards peculiar motives seem to increase this feeling: a religious sentiment attaches them to a constellation, the form of which recalls the sign of the faith planted by their ancestors in the deserts of the New World. The two great stars, which mark the summit and the foot of the cross, having nearly the same right ascension †, it follows that the constellation is almost vertical at the moment when it passes the meridian. This circumstance is known to every nation that lives beyond the tropics, or in the southern hemisphere. It is known at what hour of the night, in different seasons, the southern cross is erect or inclined. It is a time-piece that advances very regularly

\* Paradiso, c. xiv. l. 101.

† That is, they come to the meridian at nearly the same time. The *right ascension* of a heavenly body is that degree of the equator which comes with it to the meridian, and is so called, because, when at the meridian, it forms a right angle with the horizon.

nearly four minutes a day; and no other group of stars exhibits, to the naked eye, an observation of time so easily made. How often have we heard our guides in the savannahs of Venezuela, or in the desert extending from Lima to Truxillo, say, "Midnight is past; the cross begins to bend."

#### ESTHER.

Montgomery, the poet, in an address at a missionary meeting, made a most happy allusion to this account of De Humboldt's. He said, "Humboldt, travelling over various table-lands that crown the Andes, in South America, mentions, that his company, during the hours elsewhere devoted to sleep, contemplated, with wonder and delight, the silence and tranquil solemnity of the scene below. \* \* \* \* To them the constellation of the cross, chiefly composed of stars of superior magnitude and splendour, was conspicuous over all; and when on the meridian, standing upright, it presented to the eye beholding it in heaven the brightest image of the most glorious object ever exhibited on earth—an image of that altar on Calvary on which the great sacrifice was offered up. On these occasions, therefore, the guides were wont to measure and announce the watches of the night by the progress of the heavenly

bodies; and he was often touched with peculiar feeling when he heard them say to one another, 'It is past midnight; for the cross begins to bend.' Cannot the guides of the heathen, in every region of darkness and the shadow of death, take up this saying, marching, as they do, by the light of the true cross, and say, in Hindostan, 'It is past midnight; for the cross begins to bend.' And does it not so in Ceylon? Hath not the cross not only begun to bend, but is it not coming down towards the horizon, till it shall touch the earth, now that the Sun of Righteousness, with healing in his wings, is rising over all the land? Go to New Holland, and plunge into its deepest wildernesses: look up thence to heaven in prayer, and with the eye of faith, and you will even there exclaim, in a transport, 'It is past midnight; for the cross begins to bend!' Go thence to Van Dieman's Land, to New Zealand, to the isles of the Society and Sandwich groups, and the same language will be heard by you from the lips of others, or you may utter it with your own, — 'It is past midnight; the cross begins to bend.' Come home by Peru and Mexico, Chili, and Paraguay, and the Brazils — those lately liberated countries from a Christianity ruling by means of the sword, the firebrand, and the scourge,

—and here, even here, on the heights of the Cordilleras, in a more noble sense, you will hear the sound, ‘It is past midnight; for the cross begins to bend.’ Come home by the West Indies, and, O! forget not to touch upon Africa, her extremity at the Cape, her Western coast, her unpenetrated heart, her northern provinces, the empire of the false prophet! Cross over into the immeasurable regions of Asia, Tartary, China, Kamschatka, and Siberia, — in every part, if not from human voices, yet from the angel flying in the midst of heaven, having the everlasting gospel to preach, you will hear the same words, — ‘It is past midnight; the cross begins to bend!’ ”

MRS. F.

And in like manner may we hope that the midnight of heathenism is past, and that all nations are becoming illumined by the light of the gospel; so that the time is not far distant when the whole universe shall acknowledge the symbol of man’s redemption, and “the earth shall be full of the knowledge of the Lord, as the waters cover the sea.”

## CHAPTER XIII.

ON THE MINERAL SUBSTANCES CONTAINED IN  
PLANTS.

EXISTENCE OF SILEX IN VEGETABLES. — IN THE BATTAN, THE  
SHAVE-GRASS, AND THE SUGAR-CANE. — THE BURNED HAY-  
STACK. — WATER, THE SOLE VEHICLE OF NOURISHMENT TO  
PLANTS. — LEAF AND PEAT MOULD. — COPPER IN COFFEE,  
ETC. — THE BAMBOO. — ARBORESCENT FERNS AND THEIR CHA-  
RACTER. — THE MAHOGANY; AND AN ACCOUNT OF THE CUT-  
TING OF IT IN HONDURAS. — THE TANGHIN POISON OF  
MADAGASCAR, AND ITS ADMINISTRATION IN CASES OF WITCH-  
CRAFT. — CONNEXION BETWEEN CATS AND WITCHES REFERRED  
TO A CLASSICAL SOURCE.

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“ I read God's awful name emblazon'd high,  
With golden letters on th' illumin'd sky ;  
Nor less the mystic characters I see,  
Wrought on each flower, inscrib'd on every tree ;  
In ev'ry leaf that trembles to the breeze,  
I hear the voice of God among the trees.  
With Thee in shady solitudes I walk,  
With Thee in busy crowded cities talk ;  
In every creature own Thy forming power,  
In each event Thy providence adore.”

Mrs. BARBAULD.

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## HENRIETTA.

AUNT, I have just been reading in “ Bertha's Journal ” a very interesting account of the curious properties of the flinty substance called

tabasheer, which is found in the hollow stem of the bamboo.\*

MRS. F.

This singular concretion consists of *silex* †, which is deposited in the hollow joints of the bamboo, and is of more frequent occurrence among vegetables than you are perhaps aware. The skin of the Rattan Palm (*Calamus rotang*) abounds so much in *silex* that it will strike fire with a piece of steel, or merely by rubbing two pieces of the palm against each other. The same substance exists in teak and other kinds of wood, to which it gives a peculiarly gritty texture. The skin (or cuticle) of grapes contains a large proportion of *silex*; and the polishing properties of the equisetum, or shave-grass, are owing to the whole surface being composed of compact siliceous particles, which may sometimes be discerned by the naked eye in brilliant points upon the furrowed stalk.

ESTHER.

The Shave-grass (*Equisetum hyemale*) is extensively employed in polishing hard wood,

\* See also page 63. of Optics, in the 1st vol. of Natural Philosophy, in the Library of Useful Knowledge, for a detailed account of tabasheer.

† This earth has received its name from the Latin for flint (*silex*), because the common flints are almost wholly composed of it; but it is found in the greatest purity in rock crystal, which is *silex* and water.



ivory, and even brass. It is usually imported from Holland, under the name of Dutch rushes. The French call them *Prêles*: they are gathered in February and March, and grow in boggy woods. On the borders of the Lot, in France, they form a considerable article of commerce; and, in Northumberland, they are used by the dairy-maids for scouring their milk-pails.

MRS. F.

Wheat-straw (the cuticle of which contains silex) is used, when burnt, to give the last polish to marble; and, when exposed to the blowpipe, it melts into a colourless glass, while barley-straw forms a glass of a topaz-yellow. Other grasses also contain silex.

ESTHER.

I recollect seeing quantities of a black looking slag, or clinker, which was found after some haystacks had taken fire, and were burnt down. I suppose that it was formed by the siliceous particles of the hay?

MRS. F.

It was so. The stem and leaves of the sugar-cane also produce silex in very large quantities. The cane, after having undergone the pressure of the crushing-mills, is called, in the French sugar colonies, *begasse*\*; and, in this state, it is

\* The juice is termed *vesou*.

the only fuel used in boiling the sugar. The fire is very fierce, and the ashes run into a stony siliceous substance: masses of almost pure glass are formed, many inches thick, which cover the bottom of the furnace where the canes are burned.

ESTHER.

Then the silex fuses into glass, by combining with the alkali which is formed by the burning of the canes?

MRS. F.

Yes: it has been remarked, that where the canes have been raised in dry hot soils the quantity of glassy matter is most considerable.\*

ESTHER.

But how is it that plants secrete so much silex? for this earth is not, I believe, soluble in water; and water is the vehicle by which plants absorb all their nourishment.

MRS. F.

You are right in stating that no alimentary matter can enter a plant except through the medium of water. Without water there can be

\* It may not be irrelevant to remind the reader, that as the sugar-cane is used for boiling the juice, so the whale is employed as fuel for boiling the whale oil.

vegetation. De Candolle considers that silex is not a secretion of the plant, but a simple deposit of the ascending sap; this substance being soluble in water, although in a very slight degree. The enormous quantity of water absorbed by vegetables causes in time a considerable deposit of silex; and we consequently find that it increases in plants in proportion to their age. It exists most abundantly in the leaves, being deposited by their exhalation of the water which conveys it; and on them it generally accumulates, until it obstructs their pores, and causes their death. The deciduous trees disengage themselves from this mass of accumulated silex by the falling of their leaves, and it is this proportion of silex which causes leaf mould to be as much sought by the gardener as peat mould; the silex they both contain preventing them from forming a crust upon the the surface of the ground, like earths of a calcareous quality.

ESTHER.

I have understood that vegetables also contain iron.

MRS. F.

And likewise copper. This latter metal has been found in the ashes of the bark (*Cinchona*), in coffee, in wheat, and in most other plants.

In coffee, copper forms 8 parts in 1,000,000, in wheat, about four parts and a half; whence it is calculated, that we annually import into Europe more than 1200lbs. weight of copper in our coffee; and that the French, in the same period, consume nearly 8000lbs. in their bread. Manganese is the only other metal which has been found in plants, and that in very small quantities.\* But, as I have before observed, all these metals are not secretions of the plants themselves, but simple deposits of substances held in solution by the ascending sap. In plants with hollow stalks, the knots in their stems cause a kind of stagnation of the sap, which favours the deposit, and accounts for the flinty concretion in the bamboo of which you were speaking.

ESTHER.

Mrs. Clifford has been obliged to cut down her bamboo, as it was growing too large for her hothouse: how elegant this plant must be in its native country!

MRS. F.

The Bamboo (*Bambusa arundinacea*) is, I believe, diffused over all the countries of the torrid zone, and is applied by the inhabitants of the regions where it is found to many useful purposes.

\* De Candolle, *Physiologie Végétale*.

The Chinese convert it into paper so exceedingly thin that it is never printed upon both sides. The airy lightness of the bamboo, its slender stem, inclining over the stream near which it grows, and bending to the slightest breeze, give an elegance and grace to this tree of which we can form no idea from the small specimens in our hothouses. I have understood that the bamboo and the tree-ferns are the two vegetable groups which most strike the eye of a traveller on his arrival in a tropical climate.

HENRIETTA.

Do the ferns, then, grow very large in the tropics?

MRS. F.

Yes; there are at least twenty-five species of majestic ferns which rise to the height of trees. The tallest among these is *Cyathea speciosa*, of the Isle of Bourbon, which sometimes attains an elevation of thirty-five feet; the stalk alone being from twenty-two to twenty-four feet high. The *Dicksonia* also arrives at very large dimensions. One species (*D. culcita*), which is found in Madeira, and another (*D. antactica*), which is a native of New Holland, have stalks eighteen feet in height. A third species (*D. arborescens*) grows in such profusion round a lake in the island of Fayal, one of the Azores, that the

silky down of its stems is used by the principal inhabitants of the island for stuffing their mattresses. \* This lake is at the bottom of a crater on the summit of the island; for the arborescent ferns, although natives of the tropics, prefer a more moderate temperature.

ESTHER.

And, as the higher the elevation the lower the temperature, I suppose they are often found in mountainous situations?

MRS. F.

Yes; their principal habitat is upon mountains from 2000 to 3000 feet above the level of the sea, and, in South America, they accompany the Bark, that most valuable of medicines. † The arborescent ferns resemble the palms in appearance; but their stems are less straight and more knotty, and their foliage more delicate and transparent.

ESTHER.

Mamma, I have been reading this morning an interesting account of the mahogany, and the manner in which it is felled. ‡ As you are

\* Hooker's Botanical Miscellany, vol. iii. p. 67.

† Humboldt, Tableaux de la Nature.

‡ See Hooker's Botanical Miscellany, vol. i. p. 214, for the following account.

at leisure, this afternoon, I will, if you please, describe it to you.

MRS. F.

We shall all be very glad to hear your description, Esther: mahogany is the most useful wood we import; for, independently of its being converted into furniture, it has many other valuable qualities. The boats which Sir John Franklin took with him from England to the Arctic sea were constructed of mahogany; this wood (from the thinness of its planks) being esteemed as the lightest and most profitable in proportion to its strength. The Spaniards used to build their ships of mahogany, as they considered it bullet-proof, and almost indestructible by worms or in water.

FREDERICK.

Where does mahogany come from?

MRS. F.

It is chiefly brought from the Honduras, but it also grows in the islands of Jamaica and St. Vincent; and the old Jamaica mahogany is, I believe, still esteemed more valuable than that which is afforded by any other country.

ESTHER.

The Mahogany (*Swietenia mahagoni*) grows

in dense forests with other large trees and underwood. The account I was reading states, that, in the Honduras, a tree is not considered fit for cutting until 200 years have elapsed from its first appearance above the earth. The operation of cutting begins in the month of August. The labourers are divided into parties of from twenty to fifty, among whom one is selected, who is termed the huntsman. This person is always the most intelligent of the party; and his occupation is to search the woods, and discover where the mahogany is most abundant. Early in August the huntsman sets out on his important mission; and, having cut his way into the most elevated situation in the forest, he climbs the tallest tree, from the top of which he surveys the surrounding country. At this season of the year, the leaves of the mahogany are of a yellow-reddish hue; and a practised eye can readily discern them, even at a great distance. Having thus ascertained the part of the forest where the mahogany trees are most abundant, the huntsman directs his steps thither; and without compass, or any other guide than what his recollection affords, he never fails to reach the exact spot at which he aims. On some occasions, much stratagem is necessary, on the part of the huntsman, in order to prevent others from availing themselves of the advantage



of his discoveries ; for, if his steps be traced by those who are engaged in the same pursuit, all his ingenuity must be exerted to divert them from the track.

MRS. F.

And this must be very difficult among people who are entirely aware of the arts he may use, whose eyes are so quick that the slightest turn of a leaf, or the faintest impression of a foot, is unerringly perceived : even the dried leaves which may be strewed upon the ground often help to conduct to the secret spot.

ESTHER.

Yes ; and thus it frequently happens that the huntsman suffers the disappointment of finding the fruit of his labours enjoyed by another.

HENRIETTA.

How singular, that persons should be able to trace each other by such slight marks as these !

MRS. F.

“ In rude and savage life, remarkable examples occur of the effect of habits of minute attention to those circumstances to which the mind is intensely directed, by their relation to the safety

or advantage of the observer. The American hunter finds his way in the trackless forests by attention to minute appearances in the trees, which indicate to him the points of the compass. He traces the progress of his enemies or his friends by the marks of their footsteps; and judges of their numbers, their haltings, their employments, by circumstances which would entirely escape the observation of persons unaccustomed to a mode of life requiring such exercise of attention."\*

## HENRIETTA.

I recollect, Esther, your telling us that the Indians of America discern the points of the compass by the moss on the trees†; but I will no longer interrupt you.

## ESTHER.

The mahogany trees being discovered, the next operation is the felling of a sufficient number to occupy the party (or gang, as they are termed,) during the season. The mahogany tree is generally cut about ten or twelve feet from the ground, a stage being erected for the axeman employed in levelling it. A sufficient number being felled, the next operation is to cut a road to convey them to the nearest river,

\* Abercrombie on the Intellectual Powers.  
† First Series, p. 355.

where the mahogany establishment for the season is fixed. Each mahogany work forms in itself a small village, in which much rural taste is frequently displayed, although the houses are often completed in a single day, with no other implement than the axe. The work of making a road of communication from this establishment, to the centre of the spot where the trees are felled, is generally very laborious. The workmen commence by clearing away the underwood with cutlasses; and the larger trees are then felled by the axe, as close to the ground as possible; the trunks of these serving to construct whatever bridges may be required in the formation of the roads. If the mahogany trees should be much scattered, the labour and extent of the road-cutting is immense; and it not unfrequently happens that miles of road, and many bridges, are made to a single tree, which tree may ultimately yield but one log. The roads are generally completed by the month of December, when each mahogany tree is sawed across in logs of a convenient length for transporting.

FREDERICK.

That is what carpenters call cross-cutting.

ESTHER.

The workmen are guided in the length, to

which they reduce the timber by its thickness, in order to equalise the weight of the logs for the convenience of transport. The sawing being completed, the timber is then squared; and, in the month of April, begins the process of drawing out the wood to the river.

MRS. F.

Why does it not commence earlier ?

ESTHER.

Because, although the rains usually terminate about February, yet, from the ground being so saturated with wet, the roads are seldom firm enough for use before the first of April. The success of the cutter's work entirely depends upon the continuance of dry weather: a single shower of rain would materially injure his roads, and render them impassable. The logs are conveyed upon trucks, which are each drawn by seven pairs of oxen. From the intense heat of the sun, the cattle are unable to travel in the daytime. Nothing can present a more singular spectacle than the drawing down the mahogany to the river. Each gang, of about forty men, has six trucks, which require numerous attendants for driving, loading, feeding, &c. The six trucks, with their long train of oxen, will occupy an extent of road of a quarter of a mile ; and the bullocks, the men

with their lighted torches, blazing through the wild scenery of the forest, the rattling of chains, the cracking of whips, all in the still hour of midnight, give the whole procession the air of a theatrical exhibition. When the trucks arrive at the river's side, the logs are marked with the owner's name, and thrown into the water. By the middle of June the rivers swell, with the periodical rains, to an immense height; and the logs then float down a distance of 200 miles, being followed by the gang in flat-bottomed canoes, to disengage them from the branches of the overhanging trees. A bar is placed across the river to arrest their progress; and each gang separate their own logs and make them into large rafts, in which state they are conveyed to the wharfs of the proprietors, when they undergo a second process of the axe, after which they are ready for shipping. The greatest quantity is sent to England.

## HENRIETTA.

Thank you, Esther, for this entertaining account.

## MRS. F.

In the same valuable work\*, from which Esther has been quoting, there is an interesting description of the Tanghin poison of Ma-

\* Vol. iii. p. 246.

Madagascar, which I forgot to mention in our enumeration of poisons last year.\*

This poison is the seed of a tree (*Tanghinia veneniflua*. Petit Thouars.), which grows abundantly throughout Madagascar. The tree is described as about thirty feet high, with rose-coloured and white flowers, somewhat resembling those of the *Cerbera*, to which genus the tanghin was first referred. It bears a drupe, or fruit, resembling a plum, composed of a yellow fleshy outside, with a nut of a bitter flavour. This nut contains the poison, which is one of the swiftest and most deadly known. It is very often employed by the people of Madagascar for the detection of theft, and as an ordeal, in any case where sufficient proof of a crime is wanting. The kernel is bruised, and mixed with the juice of the banana, which the accused person is compelled to drink. It is in the province of Emerina that its application is most frequent; and it is there chiefly applied as a test in great crimes, such as conspiracy against the king, sorcery, &c.

ESTHER.

Is it often administered?

MRS. F.

In 1830, the Queen of Madagascar ordered an

\* First Series, Chapter XIII.

universal ordeal of the tanghin throughout her dominions, assigning as a reason for this barbarous edict that her majesty had been bewitched, and afflicted with a malady which the death of the sorcerer could alone remove. All her principal officers, the members of the royal family, diviners, and others, to the amount of some hundreds, were compelled to drink the tanghin. The ordeal was commenced in every town and village, in order "to cleanse the land from sorcerers." Many perished; but no rich persons fell victims to the administration of the poison, having it in their power to sacrifice whom they please; and those who could not purchase their lives were selected as victims. The whole account of this murderous transaction, so revolting to humanity, is given in Dr. Hooker.

## ESTHER.

I was not aware that these people had such faith in magic and witchcraft.

## MRS. F.

Yes; the belief in sorcery is universal among the Madagasses, and no limit is assigned to its power. Cats and owls were formerly\* not allowed to exist among them, because they

\* Cats have recently been permitted to enter the dwellings.

aver that no sorcery can be easily practised without their agency; and that the sorcerers wander about at night, and associate with these animals. Indeed, so deeply rooted is the belief of witchcraft in the minds of the Madagasses, from the sovereign to the slave, and so blindly are they led by this belief, that nothing less than the power of divine truth can dissolve the spell, and nothing but the light of the gospel can elevate their minds from such debasing and revolting superstition.\*

ESTHER.

How universal the idea appears to be of associating cats with sorcerers !

HENRIETTA.

From the pictures in our nursery tales of the witch and her cat riding through the air upon a broomstick.

MRS. F.

This popular belief, like many others, may

\* The British Government have made great efforts to civilise this country, and to instruct its inhabitants in the Christian religion. Missionaries have been sent out ; and the success of the services rendered to Madagascar by Mr. Hastie, the general agent, gives every promise that the civilisation of this nation may not be far distant.



be traced to a classical origin. When all the gods concealed themselves under the forms of animals, to avoid the fury of Typhon, Diana metamorphosed herself into a cat\*: hence this triform goddess patronised the cat, more especially in her character of Hecate, the goddess of the infernal regions, directress of magic and enchantment, and patroness of witches; and, perhaps, from a kindred feeling, (as having herself once assumed that semblance,) when Galinthia was transformed into a cat, Hecate took compassion upon her distress, and made her priestess of her rites. Hence there arose, as you see, a kind of *double* connexion between witches and cats; and thus you perceive how the metamorphosis of a pagan goddess has gradually dwindled down into the more humble superstition of later ages.

## ESTHER.

The Templars were accused of holding com-

\* Indeed, the fable may be traced to even an earlier period; for the metamorphosis of Diana is only copied from that of Bubastis, the Egyptian Goddess, of whom Diana was the Grecian and Roman type. Bubastis transformed herself into a cat; and a cat was the symbol under which she was worshipped by the Egyptians; who did not, as is commonly said, adore the sacred animals *themselves*, but worshipped them only as the types of those divinities, or mystic beings, of whom they were the living emblems, and with whom, either by their qualities or their forms, they were supposed to have some distinct relation. (See Champollion.)

munication with an evil spirit, who assisted in their orgies, also, under the form of a cat.

MRS. F.

The possession of nine of these animals was, at any time, sufficient to convict an old woman of witchcraft. In the beginning of the sixteenth century, a poor wretch, accused of bewitching the daughter of the Countess of Rutland, was brought to trial for the offence, with a cat, named Rutterkin, her constant attendant and confederate in works of evil.\* Many similar cases are on record; but we will hope, for the honour of human nature, that the days of witchcraft are past, and the "brinded†" or gray familiar, which presided at the incantation, and the black cat, whose brains were so necessary to the spell‡, are fast sinking into oblivion. Indeed, they may be said now to exist but in the pages of the antiquary, and in the memory of our early days, when such tales of wonder delight the youthful fancy. We then read how cats and witches exchanged forms as expediency

\* See note to *Macbeth*, in Johnson and Steevens's *Shakespeare*.

† "Thrice the brinded cat has mewed."

*Witches in Macbeth*, Act IV. Scene 1.

‡ "Yet went I back to the house again,  
Kill'd the black cat, and here is his brain."

*Witches' Song*, BEN JONSON.

required; how they made excursions together to Egypt, that land of enchantment; and the cat was as necessary an attribute of the witch, as she journeyed through the air, as the broomstick upon which she rode.

## CHAPTER XIV.

## THE SEVEN CHURCHES OF ASIA.

THE SEVEN CHURCHES. — EPHESUS. — ST. PAUL. — ST. JOHN THE THEOLOGIAN. — LEGEND OF THE SEVEN SLEEPERS — PERSECUTION OF THE CHRISTIANS BY DIOCLESIAN. — HIS BATHS. — ST. POLYCARP. — ASIARCH. — PERGAMOS. — THYATIRA — ITS DYES. — SARDIS. — PHILADELPHIA. — LAODICEA.

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“ Que sont devenues ces fameuses églises-mères d’Alexandrie, d’Antioche, de Jérusalem, de Constantinople, qui en avoient d’innombrables sous elles? C’est là que les conciles ont prononcé ces oracles qui vivront éternellement. Cette terre étoit arrosée du sang des martyrs : le désert même y florissoit par ses solitaires. Mais tout est ravagé sur ces montagnes autrefois découlantes de lait et de miel, et qui sont maintenant les cavernes inaccessibles des serpens et des basilics. Que reste-t-il sur les côtes d’Afrique, où les assemblées d’évêques étoient aussi nombreuses que les conciles universels, et où la loi de Dieu attendoit son explication de la bouche d’Augustin? Je n’y vois plus qu’une terre encore fumante de la foudre que Dieu y a lancée.”

FÉNÉLON.

## ESTHER.

MAMMA, are there many remains existing of the seven churches of Asia?

## MRS. F.

Modern travellers find most of these once celebrated cities in a most desolate condition;

but enumerate the seven churches, Esther, in the order in which they are recorded in the Revelations\*, and I will take each in succession, and tell you what is known respecting it.

ESTHER.

The seven churches of Asia were Ephesus, Smyrna, Pergamos, Thyatira, Sardis, Philadelphia, and Laodicea.

MRS. F.

Or, as Chateaubriand† designates them, Ephesus the patient; Smyrna the afflicted; Pergamos full of faith; and Thyatira the charitable; Sardis; Laodicea; and Philadelphia, beloved by him who possessed "the key of David."

Let us, then, begin with Ephesus: you can all tell me for what this city was celebrated?

HENRIETTA.

For the temple of Diana.

MRS. F.

Yes: this wonder of the world was destroyed in the third century by the Goths, in their third naval expedition. Ephesus, once the metropolis of Ionia, and the emporium of Asia

\* Chapters ii. and iii.

† Martyrs, livre ix.

Mison, is now described as a most forlorn spot; a few stones, and some miserable mud cottages, are all that remain of this ancient city. The epistle to the Ephesians is read throughout the world; but there is none in Ephesus to read it now. Their candlestick has been removed out of its place; and the great city of the goddess Diana is no more.\* It is singular that its modern name is *Aiasalik*, that is, "little moon or crescent," in allusion, probably, to the worship of Diana, as well as to the banner of the Turks.

## ESTHER.

This church was, I believe, planted by St. Paul?

## MRS. F.

It was so; and he was driven from it, as we read in the Acts †, by Demetrius and his fellow-craftsmen. St. John made his habitual residence in this city. At Ephesus he was seized and carried to Rome, whence he was exiled to the island of Patmos. After the death of Domitian, St. John obtained permission to return to Ephesus; but his great age had so much enfeebled him, that he was obliged to be carried

\* Keith on the Prophecies.

† Chapter xix.

into the assembly of the faithful. You recollect what was always his parting benediction, when his infirmities no longer permitted him to perform the offices of religion?

ESTHER.

Yes; all he said was, "My little children, love one another;" and, when asked by his disciples why he so constantly repeated the same exhortation, he replied, "It is what our Lord has commanded us to do; and, provided we follow his commands, we require nothing more."

MRS. F.

It was at Ephesus that St. John died, A. D. 99, at the age of ninety-four: he was also buried near this city.

ESTHER.

Is St. John the Evangelist the same person as St. John the Theologian?

MRS. F.

Yes: St. John the "Evangelist" is also styled the "Theologian" and the "Divine," from his writings being of a more doctrinal nature than those of the other writers of the New Testament. The mosque at Ephesus is supposed to be on the site of the church of St. John. The early church here was a very small one; but it

was rebuilt by the emperor Justinian, and was so magnificent as to equal in splendour the church of the Apostles at Constantinople. It was, doubtless, constructed from the spoils of the great temple. The front of the present mosque is faced with the same brilliant white marble which made the temple of Diana shine like a meteor; and has within it rich columns, which are of the same Parian marble that composed the 127 Ionic columns, each sixty feet high, which supported the wondrous structure of the Ephesian Diana. The prison of St. Paul, the tomb of Timothy his companion, who was the first bishop of Ephesus, and the cavern of the Seven Sleepers, are among the objects of interest still pointed out to the traveller.

HENRIETTA.

Who were the Seven Sleepers, aunt?

MRS. F.

The story of the Seven Sleepers is one of the oldest legends of the church, and is thus related: — “When the emperor Decius persecuted the Christians, seven noble youths of Ephesus concealed themselves in a spacious cavern, in the side of an adjacent mountain, where they were doomed to perish by the tyrant, who gave



orders that the entrance should be firmly secured with a pile of huge stones. Tradition says they immediately fell into a deep slumber, which was miraculously prolonged, without injuring the powers of life, during a period of one hundred and eighty-seven years. At the end of that time, the slaves of Adolius, to whom the inheritance of the mountain had descended, removed the stones, to supply materials for some rustic edifice; the light of the sun darted into the cavern, and the Seven Sleepers awoke. After a slumber, as they thought, of a few hours, they were pressed by the calls of hunger; and resolved that Jamblichus, one of their number, should secretly return to the city to purchase bread for the use of his companions. The youth could no longer recognise the once familiar aspect of his native country; and his surprise was increased by the appearance of a large cross, triumphantly erected over the principal gate of Ephesus. His singular dress and obsolete language confounded the baker, to whom he offered an ancient medal of Decius as the current coin of the empire; and Jamblichus, on the suspicion of a secret treasure, was dragged before the judge. Their mutual inquiries produced the discovery, that two centuries were almost elapsed since Jamblichus and his friends had escaped from the rage of a

popular tyrant. The bishop of 'Ephesus, the clergy, the magistrates, the people, and, as it is said, the emperor Theodosius\* himself, hastened to visit the cavern of the Seven Sleepers, who bestowed their benediction, related their story, and, at the same time, peaceably expired. The origin of this singular fable cannot be ascribed to the modern Greeks, for the tradition may be traced within half a century of the time of its supposed occurrence. The names of the Seven Sleepers are inscribed in the Roman, the Abyssinian, and the Russian calendar: in the East their memory is preserved with reverence. Nor has their reputation been confined to the Christian world. Mahomet has introduced the legend into the Koran; the story of the Seven Sleepers has been adopted and adorned by the nations from Bengal to Africa, who profess the Mahometan religion; and some vestiges of a similar tradition have been discovered in the remote extremities of Scandinavia.†

HENRIETTA.

Thank you, aunt, for this curious story.

MRS. F.

Let us now proceed to the church of Smyrna. She had no judgment denounced against her,

\* The younger.

† Gibbon, chapter xxxiii.

except the tribulation of ten days, which refers to the ten years' persecution of the emperor Dioclesian,

ESTHER.

It was he who employed the Christians to build the baths at Rome, which are called by his name.

MRS. F.

Yes; and, because they all suffered martyrdom, Pius IV. dedicated these baths to sacred uses; and the genius of Michael Angelo formed, of one of the apartments, the present beautiful church, called Santa Maria degli Angeli, the stupendous granite columns \* of the old building serving as the support of the new edifice.

HENRIETTA.

What is the date of the persecution of the Christians by Dioclesian?

MRS. F.

His first edict was published in A. D. 303. One of the persecutions of the Christians by Dioclesian is selected by Chateaubriand as the period at which he fixes his tale of the Christian

\* These magnificent columns, which are composed of single blocks of oriental granite, are sixteen feet in circumference, and forty-three feet in height.

persecutions, called "Les Martyrs." It occurred only two years before the abdication of Dioclesian, and his retirement into Dalmatia ; and may be chiefly attributed to the weakness of the emperor, and to the influence of the Cæsar Galerius, who was animated by a most furious hatred against the Christians. But to return to the church of Smyrna. — Favoured so highly beyond all the other churches of the Apocalypse, it is the only city which retains any comparison with its former grandeur. Unlike the more famous Ephesus, Smyrna is still a large city. It stands in a lovely bay, which has been compared with that of Naples. The ancients esteemed it the most beautiful of the Ionian cities ; and Strabo, on the first view of it, exclaimed, " This is the most beautiful city in the world ! " It was also extolled as the " lovely," the " crown of Ionia," the " ornament of Asia." In the reign of the emperor Adrian, the colleges of Smyrna were filled with the youth of all nations ; and it was styled, " grove of the eloquence of the sages," the " museum of Ionia," the " domicile of the graces and the muses." Under the Christian emperors, Smyrna ranked next to Constantinople, as well in consideration of her ancient celebrity as of the glory conferred upon her by religion. Her first bishop was St. Polycarp, who was ordained by St. John, and

who suffered martyrdom, with heroic fortitude, at the age of eighty-six.

## HENRIETTA.

Would you have the kindness to give us some account of his life?

## MRS. F.

With pleasure. St. Polycarp was converted to Christianity by St. John, and had the privilege of conversing with those who had seen our blessed Saviour. St. John, to whom he more especially attached himself, ordained him bishop of Smyrna, about the year 96. In 167, the persecution against the Christians increased in violence; and the pagans of Smyrna, incensed at the fortitude of the martyrs, demanded that St. Polycarp should be brought into the circus. He was accordingly taken to the amphitheatre, when the Proconsul enjoined him to deny his Saviour. St. Polycarp replied, "Eighty and six years have I served Christ, and he hath never wronged me: how can I then speak ill against my King and my Saviour?" Upon this heroic answer, the people tumultuously demanded of Philip the Asiarch, that a lion should be let loose to devour the Christian. Philip excused himself, upon the ground that the exhibitions of the amphitheatre were at an end.

Finding the Asiarch would not accede to their wishes, the flames were resorted to; and such was the fury of the populace, that they fetched wood from the baths and the town below to make the fire. This was in the year 167; a year as awfully remarkable for the overthrow of the city of Smyrna by an earthquake. When the fire was prepared, St. Polycarp desired that he might not be nailed to the stake; for he said, "He who will give me fortitude to endure the fire, will also grant me strength to remain firm, without your employing nails." His wish was complied with, and he was bound only. When he had finished praying, the fire was lighted, and his body was burned in the middle of the fire to satisfy the Jews, who desired that it might not receive the rites of sepulture. St. Polycarp was the great friend of St. Ignatius, and St. Irenaeus was one of his disciples; but we will, some day, read the lives of the early Christian martyrs, for they are full of interest and instruction.

ESTHER.

Thank you, mamma. I did not like to interrupt you, in your life of St. Polycarp, but who was the Asiarch?

MRS. F.

The Asiarch was an officer appointed annually

to preside over the games of a particular province. It would appear that this dignity was partly magisterial and partly sacerdotal.

Smyrna has not had "her candlestick" removed. It is still a large city, the emporium of the Levant, the most considerable seaport on the coast. Her population is large; and she has churches both Greek, Catholic, and Protestant. Smyrna is fast returning to her pristine importance, while her sister churches are desolate, and without inhabitants.

#### HENRIETTA.

The church of Pergamos is next.

#### MRS. F.

Pergamos continues to exist, and so does Thyatira\*, but both miserably degraded. Sardis, which was warned in vain — Sardis, the first Asiatic city which was converted by the preaching of St. John, the capital of Lydia, the seat of the empire of Cræsus — Sardis has now only a few huts, scattered among the ruins, which are

\* In the Acts of the Apostles, we are informed that Lydia was "a seller of purple, in the city of Thyatira;" and the discovery of an inscription here, which makes mention of "the dyers," has been esteemed important in connexion with this passage. Even at the present time, Thyatira is famous for dyeing; and the scarlet cloths which are dyed here are considered superior to any others furnished by Asia Minor; and large quantities are sent to Smyrna for the purposes of commerce.

occupied by the Turkish herdsmen, who are its only inhabitants. As the seat of a Christian church it is lost: no Christians reside on the spot. A modern traveller \* observes, "If I should be asked what impresses the mind most strongly on beholding Sardis, I should say its indescribable solitude, like the darkness in Egypt, darkness that could be felt. So the deep solitude of the spot, once the 'lady of the kingdoms,' produces a corresponding feeling of desolate abandonment in the mind, which can never be forgotten. Connect this feeling with the message of the Apocalypse to the church of Sardis, 'Thou hast a name that thou livest, and art dead. I will come on thee as a thief; and thou shalt not know what hour I will come upon thee;' and then look round, and ask, where are the churches, where are the Christians, of Sardis? The tumuli beyond the Hermus reply, 'all dead;' suffering the infliction of the threatened judgment of God, for the abuse of their privileges."

HENRIETTA.

Philadelphia is the next church mentioned by St. John.

MRS. F.

Philadelphia had been faithful in the hour of

\* Arundell's Discoveries in Asia Minor, vol. i. p. 29.



temptation, and Philadelphia, alone, long withstood the power of the Turks. The captivity or ruin of the seven churches of Asia was consummated, by the conquests of the Turks, in 1312. Philadelphia only was saved. In the loss of Ephesus, the Christians deplored the fall of the head of the Asiatic churches, "the extinction of the first candlestick of the Revelations: the desolation is complete; and the temple of Diana, or the church of Mary, will equally elude the search of the curious traveller. The circus, and three stately theatres, of Laodicea are now peopled with wolves and foxes: Sardis is reduced to a miserable village:" the God of Mahomet is invoked in the mosques of Thyatira and Pergamos; and the populousness of Smyrna is supported by the foreign trade of Franks and Armenians: Philadelphia alone has been saved. "At a distance from the sea, forgotten by the emperors, encompassed on all sides by the Turks, her valiant citizens defended their religion and freedom above fourscore years; and at length capitulated with the proudest of the Ottomans. Among the Greek colonies and churches of Asia, Philadelphia is still erect, a column in a scene of ruins."\* It is an interesting circumstance to find Christianity more flourish-

\* Gibbon, chapter lxiv.

ing here than in many other parts of the Turkish empire: there is still a numerous Christian population, and divine service is celebrated every Sunday in five churches. Nor is it less interesting, in these eventful times, and notwithstanding the general degeneracy of the Greek church, to learn that the present bishop of Philadelphia accounts "the bible the only foundation of all religious belief," and is spoken of most highly by modern travellers. Philadelphia is now called Allah-shehr, the city of God, which, when viewed in connexion with the promises made to that church and its members, is, to say the least, a singular occurrence.

## ESTHER.

We next come to Laodicea. All the other churches were found worthy of some commendation, but, in what the spirit said to the lukewarm church of Laodicea, there was not one word of approval.

## MRS. F.

In Laodicea a flourishing church had been planted in the time of the apostle Paul; but it is now utterly desolate; its only inhabitants are wolves, jackals, and foxes. The ruins, however, bear witness to its former greatness. Laodicea was the metropolis of the greater Phrygia, and was, as heathen writers attest, an extensive, and

very celebrated city. It rose to eminence about the beginning of the Christian æra. It was the mother-church of sixteen bishoprics. Its three theatres, and the immense circus, capable of containing thirty thousand spectators, the spacious ruins of which are still to be seen, give proof of its ancient wealth and population. It collected a considerable revenue from its flocks of sheep, celebrated for the fineness of their wool. There are few ancient cities more likely than Laodicea to preserve many curious remains of antiquity beneath the surface of the soil; the earthquakes to which it was subject rendering it probable that valuable works of art have often been buried beneath the ruins of the public and private edifices. Such is Laodicea, without any human inhabitants, except, occasionally, wandering Turcomans pitch their tents in its amphitheatre.

## ESTHER.

Then Smyrna is the only city which retains any degree of its former greatness?

## MRS. F.

Yes; such as I have described is the present state of the seven churches. "Ephesus, the boast of Ionia, the eye of Asia, has long been in the darkness of primitive non-existence: the streams of her commerce, like her own

numerous ports, are all dried up. The proconsular chair of Laodicea is now occupied by the vulture and the jackal. At Sardis, where once a Solon reminded Cræsus of his mortality, the solitary cucuvaia\* awakens the same reflection; and if Philadelphia, Thyatira, and Pergamos continue to exist, it is in a state of being infinitely degraded from that which they once enjoyed. Smyrna alone flourishes still. Her temples and public edifices are no more; but her opulence, extent, and population are certainly increased."†

Such have been God's dealings with his churches,—dealings which may afford useful instruction to the rest of the world; for, "If judgment begin at the House of God, what shall the end of them be that do not obey the Gospel of Christ?"‡

"Revive thy dying churches, Lord,  
And bid our drooping graces live;  
And, more, that energy afford  
A Saviour's blood alone can give."

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\* An owl, so named from its note, which is very shrill.

† Arundell's *Asia Minor*, vol. ii. p. 357.

‡ 1 Peter, chapter iv. verse 17.

## CHAPTER XV.

## ON TREES.

EARTH ROUND THE TRUNK OF A TREE. — SPONGIOLES. — DISTANCE AT WHICH TREES SHOULD BE WATERED. — OLIVES IN TUSCANY. — SCOLYTUS DESTRUCTOR. — WYCH ELM. — PLANTS CELEBRATED IN WITCHCRAFT. — THE NETTLE AND OTHER STINGING PLANTS. — RESINOUS DOTS OF THE BLACK CURRANT. — GUM-LADANUM. — RUSSIAN LEATHER. — BIRCH WINE AND MAPLE SUGAR. — BIRD'S-EYE MAPLE. — BIRCH — ITS POWER OF RESISTING COLD — ITS USES IN LAPLAND — IN NORWAY. — BIRCH SOUP. — BARK BREAD. — ROOTS OF THE WATER-LILY. — CHRISTOPHER OF BAVARIA, THE BARK-KING. — EAST MATS. — LIME TREES. — LONGEVITY OF TREES. — THEY NEVER DIE OF OLD AGE. — EXTERNAL CAUSES OF THE DEATH OF TREES. — INJURIES THEY RECEIVE FROM MEN AND ANIMALS, FROM VEGETABLE PARASITES, AND FROM EACH OTHER.

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“ ——— dry and dead,  
Still clad with reliques of its trophies old,  
Lifting to heaven its aged hoary head,  
Whose foot on earth hath got but feeble hold.”

SPENSER.

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## ESTHER.

MAMMA, how this beautiful elm is dying !

## HENRIETTA.

It is because the earth has been raised round it. The tree might have been saved, if a little

wall had been built at a short distance from the trunk, to prevent the earth from decaying the stem.

MRS. F.

This plan would not have succeeded, Henrietta, as experiment has proved, in the case of the trees in Hyde Park, which were so treated; but without success, as all vegetable physiologists could have predicted, for the expedient was founded upon wrong principles. A tree, so filled up, does not perish, as is commonly believed, from the reason which you assign, viz., the decay of the stem, but from the sudden embankment of the earth, which excludes the free access to its roots of the atmospheric air, so essential to their life and health.

HENRIETTA.

Do the roots of plants, then, require air?

MRS. F.

A certain quantity is necessary to the roots, as well as to the other parts of a tree. Seeds will not germinate, nor bulbs shoot, if planted too deep. Indeed, it is a complete error to suppose that trees penetrate the earth to a great depth. Except in a few instances, such as the baobab, which grows in the sand \*, four or five feet will

\* First Series, Chapter IV.

be often found to exceed the depth of the roots of trees of from sixty to eighty feet in length.\* Roots spread much more in an oblique or horizontal, than in a vertical, direction, in order that they may have the full benefit of the oxygen of the air.

ESTHER.

Then this, I imagine, is the reason that loosening the soil is so conducive to the health of trees as well as of other plants?

MRS. F.

Yes; the more compact the soil, the less deep a tree should be planted. In stiff clay, therefore, we should neither sow nor plant so deep as in sand; and, if a tree be planted too low in the ground, it will often throw out new shoots towards the surface, and the old ones cease to perform their functions; but when a tree is too old to send up new roots, it becomes *staggered*, (as the foresters term it,) and from the summit, decay and death gradually extend to the rest of the tree.

I therefore think we have now proved that the elm is not dying from the decay of its bark, but because the roots, finding themselves suddenly covered over, and excluded from the atmos-

\* Burnett, in Journal of the Royal Institution.

pheric air, before they have time to send up fresh roots nearer the surface, become suffocated, and the death of the tree is the consequence.

ESTHER.

It is not by the whole surface of the root that a tree absorbs nourishment, but by the tender tips or extremities, which botanists term spongioles; hence the necessity, in transplanting, of preserving these delicate organs or fibres, which are too often carelessly destroyed.

MRS. F.

This explains why trees with very close foliage do not perish from drought in dry summers, when the earth becomes like dust underneath them, from their foliage turning off the rain.

HENRIETTA.

How?

MRS. F.

Because the roots near the stem are inactive, and have little to perform, as preservatives of life, except acting as conduits: the whole process of absorbing nourishment goes on through the spongioles, which, being at the extremities of the roots, are placed beyond the influence of the shade, and extend wherever moisture is to be found.



ESTHER.

Then the roots of trees usually extend to the same distance as the branches, from the trunk of the tree?

MRS. F.

Yes; the length of the branches is, in general, equal to the length of the roots; hence, when we water a tree, we should not do it immediately round the trunk, but at a distance proportionate to a circle, drawn round the tree, of the same diameter as its branches, and then the moisture sinks into the ground precisely where the spongioles are placed which are to take it up. Hence, you see, that trees have the full advantage of the rain to their roots, how dense soever may be their foliage.

FREDERICK.

Then, in placing manure round a tree, we should be guided by the same principle, and lay it in a circular trench, corresponding to the length of the branches.

MRS. F.

Precisely so; and the intelligent agriculturists of Tuscany carefully observe this rule in manuring their olive-trees, and thus considerably economise the material.\*

\* De Candolle, *Physiologie Végétale*.

ESTHER.

One more conclusion we may also draw from this principle, and that is that, if a plant be placed very near the trunk of a large tree, it will succeed better than if placed near the extremity of its branches.

MRS. F.

Yes; De Candolle made the experiment. He planted two rows of young fir round an old willow; one row immediately round its trunk, the other at a distance corresponding with the circumference of its branches. The whole of the outer row withered, while those near the trunk lived, although shaded from the full influence of the sun and dew.\*

FREDERICK.

Here is a little beetle, running up the trunk of the tree.

MRS. F.

It is the *Scolytus destructor*, which committed such ravages among the elms of St. James's Park, by feeding upon the inner part of the tree. When we return to the house, I will show you a magnified representation of the insect in Curtis's British Entomology†, where its habits are fully described. It commits the injury in

\* De-Candolle, p. 1472.

† Vol. I. plate 43.

its larva state, when, by feeding upon the liber and the young wood, it separates the bark from the tree. The woodpeckers are thus enabled to detect the larvæ of the coleoptera upon which they feed, by the hollow sound given out by the bark when struck with their beaks.

## HENRIETTA.

This tree is of the kind which we call the Wych elm (*Ulmus montana*).

## MRS. F.

Yes, and it is also sometimes termed the Hertfordshire elm, being very frequent and luxuriant in that county. The elm tree, it appears, was the subject of many superstitious ceremonies among our Saxon ancestors, who carried them to such an extent that King Edgar issued a canon, by which he decreed that every priest should abolish such practices. Hence, probably, the denomination Wych or Witch elm, by which this species is known.

## ESTHER.

Many of our British herbs were much celebrated in the mysteries of witchcraft. The elegant little Enchanter's Nightshade (*Circæa lutetiana*), which is often found in churchyards, had a high reputation: then there was the fabled mandrake, conjectured to be the Bryony

(*Bryonia dioica*), the root of which was always drawn from the ground by a dog, as it screamed during the operation \*, and caused the death of the animal who pulled it up: then there was the Pæony root (*Pæonia corallina*), of which the anodyne necklaces for children are still, I believe, made; and the Vervain (*Verbena officinalis*), which, as its Celtic root, *ferfaen* †, implies, restrained or controlled the fairy or evil spirit.

“ ——— vervain and dill  
Hinder witches of their will.”

MRS. F.

The vervain has been very generally employed in superstitious rites. It was highly venerated by the Druids; among the ancient Persians, the Magi held branches of vervain in their hands when they worshipped the sun: the ancients rubbed the altars of Jupiter with this plant, and used it in divers divinations: it was esteemed as reconciling enemies, and was worn by heralds, when they went out to proclaim peace or war. So Drayton: —

“ A wreath of vervain heralds wear,  
Amongst our garlands named,  
Being sent that dreadful news to bear,  
Offensive war proclaimed.”

---

\* “ Like shrieking mandrakes torn from out the earth.”

SHAKESPEARE.

† i. e. Restraint of the wind, which means the giant, fairy, evil spirit, or witch (De Theis).

ESTHER.

Honesty (*Lunaria*) was also celebrated for its magical virtues:—

“ Enchanting lunary here lies,  
In sorceries excelling.”\*

And Chaucer mentions also agrimony (*Agrimonia*) and valerian as used in incantation:—

“ And herbes coude I tell eke many on,  
As egremaine, valerian, and lunarie.”

Agrimony and vervain are still in high repute among the collectors of simples for their medicinal virtues.

HENRIETTA.

Take care, Frederick, or that nettle will sting your foot.

ESTHER.

As a poet says, —

“ *Urtica* flings  
Her barbed shafts, and darts her poison'd stings.”

MRS. F.

But he is wrong in the epithet “barbed,” for the sting of the nettle is composed of one straight, stiff, needle-like hair, rising

\* Drayton.

from the poison-chamber in which the deleterious juice the nettle secretes is collected and stored up; and which these hairs, when pressed, have the power of emitting. This sting, doubtless given to the nettle to keep off aggression, has a striking resemblance in its structure to the tooth of the viper, and the sting of the bee.



Magnified representation of the sting of the nettle.

ESTHER.

Does the sting vary in form?

MRS. F.

Yes, it differs in different plants; and although, in our native nettles (*Urtica dioica* and *urens*), it produces an uneasy sensation only, yet, in some of the Indian species, it has caused locked jaw, and even death itself, under excruciating agony, the effect being said to resemble that of boiling oil flowing over the part affected.\*

ESTHER.

There are two plants in our garden, the *Loasa* and *Blumenbachia*, which sting very severely. The other day I accidentally rubbed

\* Lindley.

my hand against a plant of *Loasa placei*, and you see I have still the marks upon my fingers, although it is nearly a fortnight since it happened.

MRS. F.

The nature of the caustic fluid, excreted from these chambers or glands of the stinging plants, is yet little known, nor has much been ascertained of many others given out by various plants. The leaves and fruit of the black currant (*Ribes nigrum*), for instance, are covered with resinous dots, which appear to issue from glands, and which give the peculiar taste and smell of this fruit.

ESTHER.

The gum-ladanum is procured from several of the cistus tribe, particularly from *Cistus creticus*: it is collected by beating the leaves and bark of the tree, in damp weather, with leathern thongs, to which the ladanum adheres; a mode of procuring it which was adopted by the ancients, who were also careful in combing off such as was found sticking to the beards of their goats, which browsed upon the cistus.\*

MRS. F.

And the rind of the birch gives out a resinous

\* Herodotus, *Thalia*.

matter which, in the spring, diffuses a balmy odour, and caused the tree to be characterised by Burns as the "fragrant birk." It is this substance which communicates its smell to the leather tanned with birch-bark, and imparts the peculiar odour to the leather of Russia, in which country the birch is used in the process of tanning.

ESTHER.

I know no more graceful tree than a drooping birch, as Sir W. Scott describes it :—

"Where weeps the birch of silver bark,  
With long dishevelled hair."

FREDERICK.

I have often seen the birch-bark canoes, made by the North American Indians.

MRS. F.

Yes, they apply the birch to a variety of useful purposes. The birch affords a weak wine, for procuring which the trunk is wounded in the spring, when the quantity of sap it yields is asserted to be equal to the weight of the whole tree.\*

ESTHER.

The sugar maple is cut in the same manner

\* De Candolle, *Physiologie Végétale*, p. 91.



in the spring, to obtain its sap, from which sugar is prepared. I do not know if you are aware, Henrietta, that the beautiful American wood, called the bird's-eye maple, of which our chairs are made, is the wood of the Sugar maple (*Acer saccharinum*), the eyes or knots in the wood being produced by age.

MRS. F.

But to return to the birch.—This tree can resist a greater degree of cold than any other, and is found in the highest regions of the Alps, and those nearest the pole. This capacity to endure cold is attributed to the numerous layers of its epidermis\* which, as you know, may be torn off in ribands. These multiplied coverings prevent the escape of the internal warmth of the tree, and keep it at a temperature above that of the atmosphere.† To the humble Laplander the Dwarf birch (*Betula nana*) is most useful. He employs it for fuel, and, covered with rein-deer's skin, it serves him for a bed. In Norway, the bark of the birch is universally placed underneath the slates, tiles, or whatever may form the exterior covering of a house, to prevent the wood beneath from decaying. All

\* The epidermis is the thin membrane which covers the whole surface of a plant.

† See Chapter XVIII.

posts which come in contact with the earth, whether bridges, gates, or fences, are always carefully wrapped round with flakes of birch-bark, for a few inches both above and below the ground. \*

ESTHER.

During the Russian campaign, when the French were pressed for provisions, the cook of Eugène Beauharnois prepared so excellent a soup from the bark of the birch tree, that the prince used frequently afterwards, on his return from the campaign, to have it at his table.

HENRIETTA.

And is not bread sometimes made from birch-bark?

MRS. F.

Yes; but in Norway, where this scanty fare is most general, it is the bark of the pine, mixed up and ground with ill-ripened oats, which forms the common bread of the inhabitants of the Fjelde. A recent traveller states † that he saw many trees standing with all their branches dead, having been stripped of their bark to make bread. It is the inner rind which is used, taken off in flakes like a sheet of foolscap paper,

\* Laing's Residence in Norway, p. 346.

† Ibid. p. 341.

and steeped or washed in warm water, to remove its astringent principle. It is then hung across a rope to dry in the sun, and looks exactly like sheets of parchment. When dry it is pounded into small pieces, mixed with corn, and ground into meal in the handmill. It is much more generally used than would be supposed. "There are districts in which the forests suffered very considerable damage in 1812 and 1814, when bad crops, and the war then raging, reduced many to bark-bread. The Fjelde bonder use it more or less every year. It is not very unpalatable, but it is very costly," as the tree is left to perish on its root.

## ESTHER.

In Sweden, the roots of the yellow water-lily (*Nymphæa lutea*) are sometimes employed, in years of scarcity, to mix with the bread which they make from the bark of the fir \* (*Pinus sylvestris*).

## MRS. F.

Yes: a king of Sweden, Christopher of Bavaria†, derived the epithet of *Bark-konung*, or bark king, from a famine which occurred during his reign; and the peasants, who were obliged

\* De Candolle, *Propriétés Médicales*. The roots of the yellow water-lily are the favourite food of the beaver.

† He reigned from 1441 to 1447.

to mix the bark of the fir with their flour, attributed the scarcity to their sovereign, and bestowed upon him this appellation.

ESTHER.

But, since modern chemists have succeeded in converting sawdust into an agreeable alimentary substance, there appears nothing extraordinary in these accounts of bark-bread.

HENRIETTA.

From the bark of what tree are the bast mats made, aunt?

MRS. F.

From the liber or inner bark of the lime tree. The Russian or bast mats are chiefly imported from the Baltic, where they are used for packing hemp and flax. The lime appears to be, of all the European trees, that which is capable of attaining the largest diameter; and, in Switzerland and Germany, there are many of extraordinary size; but we must read Evelyn's *Sylva* for an account of some of the largest trees upon record; those aged

"chronicles of time  
By which the forest woodman marks his tale."

ESTHER.

What is the comparative longevity of the different kinds of trees?

MRS. F.

I will show you the statement of De Candolle upon the subject, in which the ages he assigns to some are rather startling. \*

ESTHER.

The oak is generally estimated at 900 years.

"The monarch oak, the patriarch of the trees,  
Shoots rising up, and spreads by slow degrees:  
Three centuries he grows, and three he stays,  
Supreme in state, and in three more decays."

MRS. F.

De Candolle gives a greater age to some oaks now living, or that have been recently cut down.

\* De Candolle states that, according to the best calculations, the ages of some of the trees which have existed, or are now existing, upon the globe may be computed as follows:—

	Years.
Elm - - - - -	335
Cypress - - - - -	about 350
Cheirostemon - - - - -	about 400
Ivy - - - - -	450
Larch - - - - -	576
Orange - - - - -	630
Olive - - - - -	about 700
Oriental Plane - - - - -	720 and upwards.
Cedar of Lebanon - - - - -	about 800
Oak - - - - -	810; 1080; 1500
Lime - - - - -	1076; 1147
Yew - - - - -	1215; 1448; 2588; 2880

His estimates of the deciduous cypress and the baobab have been already noticed in First Series, Chap. IV. See *Physiologie Végétale*, p. 1007., where there are also some interesting details of the sizes of trees.

Strictly speaking, a tree never dies of old age. In the animal kingdom we find a limited period of existence assigned to each individual, from the gradual obstruction of those organs which are destined to nourish it: in the vegetable kingdom, on the contrary, we find no such cause for death; as a tree is always forming new vessels, which replace those that are obstructed, and is thus enabled to carry on, in its old age, all its functions, with as much vigour as in its earliest youth.

ESTHER.

Then what are the causes of the death of a plant?

MRS. F.

Almost too many to enumerate; but they all proceed from accidents or disease produced by external agency. Besides those which they receive from the hand of man, and from the elements\*, animals inflict many injuries upon vegetables. A great proportion of the animal kingdom derive their whole nourishment from plants: the herbivorous animals feed upon their foliage; the larva of the cockchafer and other insects prey upon their roots; while their fruit is devoured by monkeys, rats, squirrels, snails, ants, and the numerous tribe of granivorous birds.

\* Frost, wind, floods, lightning, hail, &c.

Some animals attack the vegetable world, not only for food but for shelter; such are the caterpillars, which conceal themselves under the cuticle (or external membrane) of the leaf; the larva of coleoptera, which feed upon the liber and the alburnum\*; those which devour the pith of the tree, or which introduce themselves into the heart of the fruit. These are among the most formidable of the enemies against which a tree has to struggle; for their attacks are upon the interior of the plant, where they elude observation.

Again, some animals gnaw or penetrate trees for shelter alone; such are rats, squirrels, spiders, birds, and reptiles, and also the industrious beaver, which fells the trees he requires for constructing his habitation.

Lastly, the admirable instinct exhibited by animals in providing for their young is often exercised at the expense of the vegetable world. Birds carry away the leaves, &c. of trees for their nests; but, in this point of view, insects are most destructive; and the different kinds of galls and excrescences we find upon plants are so many deposits of the eggs of insects, who select our choicest fruits for the birthplace of their young. Such are a few of the direct

\* Or the incompletely formed layers of wood: the perfectly formed wood is called the *heart-wood*.

injuries committed by animals: and, when we add to these the indirect mischief committed by others, as the pig, which roots up the grass, or the mole, which cuts the roots that obstruct its passage, we must admit that we have enumerated a formidable host of aggressors in the animal kingdom.

We next proceed to the injuries committed by vegetables upon each other.

Parasitical plants produce great disease, whether they belong to the insidious cryptogamia or to the higher orders of vegetables. Among the last we rank the mistletoe, the rafflesia, the dodder (*Cuscuta*), the broomrape (*Orobanchæ*), the bird's-nest (*Monotropa nidus avis*), the toothwort (*Lathræa squamaria*), and many more; while the cryptogamic tribe present a fearful array, too well known to the farmer under the name of mildew (*Puccinia*), smut (*Uredo segetum*), rust (*Uredo rubigo*), &c.

Nor are these the only injuries which vegetables sustain from their own kind: the plants which may be termed false parasites (because they derive no real nourishment from the tree) are amongst its enemies.

HENRIETTA.

And what are they?



MRS. F.

The ivy and other running plants, which encircle the tree to suffocation, the orchideæ, the lichens, and the mosses, may all range themselves under this class.

Trees, also, injure the smaller plants by their dense foliage, which excludes the access of air and light, by their voracious roots, which deprive the more feeble of the nourishment necessary to their existence, and by many other means, too numerous to mention.

Such, then, are the causes which occasion the disease and death of plants; and thus, although endowed with an organisation capable of indefinite existence, they are brought by exterior agency within the ever-dying, ever-living, circle of nature, in which every thing is reduced to its elementary principles, again to form nourishment to new progenys of animal and vegetable existence. —

“ See dying vegetables life sustain ;  
See life, dissolving, vegetate again.”

“ Every thing lives, flourishes, and decays: every thing dies, but nothing is lost; for the great principle of life only changes its form, and the destruction of one generation is the vivification of the next.”\*

\* Dr. Mason Good, in his “ Book of Nature.”

## CHAPTER XVI.

## A WALK IN THE FIELDS.

A SNAIL UPON THE WINDOW. — THE FROG-HOPPER. — DEPREDATIONS OF HEDGEHOGS, JAYS, ETC. — THE PIGEONS OF ST. MARK AT VENICE. — RECOVERY OF A PAINTING OF TITIAN'S. — CANOVA. — THE LESSER SPEARWORT. — ACRID AND POISONOUS JUICES OF PLANTS. — REFLECTIONS FROM NEWTON.

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“ And, as they wander with a keen delight,  
 If but a leveret catch their quicker sight  
 Down a green alley, or a squirrel then  
 Climb the gnarled oak, and look, and climb again;  
 If but a moth flit by, an acorn fall,  
 He turns their thoughts to him who made them all.”  
 ROGERS'S *Human Life*.

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## HENRIETTA.

HARK ! aunt, what a strange noise !

[All the party listened attentively, and heard a harsh grating sound, succeeded by another, resembling the cry of a child or cat. Presently these noises ceased, and were followed by harmonic tones, resembling an Æolian harp, or musical glasses. “Now I know whence these sounds proceed,” observed Mrs. Fortescue, and she

pointed to a snail, which was slowly crossing the upper pane of glass in the window.]

ESTHER.

How can a snail occasion these sounds?

MRS. F.

They are made much in the same manner as those produced by musical glasses. The greater or less degree of slime upon the foot of the snail occasions the variations in the tones as the animal passes over the glass. Perhaps, also, in dry weather like this, there may be some particles of dust attached, either to the window pane or to the slimy foot of the snail, and these may occasion the very harsh grating noise we at first heard. I am, however, inclined to suppose that these sounds occur only under some peculiar modification of the slime; for I have known numbers of snails to be placed upon a window, in order to produce the sounds, but without success. I am very glad that I have chanced to hear them\*, for I know but of one parallel instance on record†, and in that the sounds were more varied and more intense than those we have now heard.

\* Fact. In an evening of August, 1835.

† See "A night alarm," in Mrs. Lee's *Stories of Strange Lands*.

But, Mary and Esther, I see you are prepared to take a walk : where are you going ?

MARY.

We are going to gather some plantain leaves for my rabbit, in the field beyond the wood.

MRS. F.

Then we will follow you.

[The two sisters, accordingly, set out together.]

MARY.

What is that curious little brown insect, Esther?

ESTHER.

It is the frog-hopper, or cuckoo-spit (*Cicada spumaria*), as it is more generally called.

MARY.

Is this the animal which covers with foam the stalks of the pretty little white spring flower, the stitchwort ?

ESTHER.

The same, though it is in the larva state that this insect emits the frothy kind of matter we so often see upon the stalks and leaves of plants, more particularly of the stellaria (*S. graminea*), to which you allude. In the midst of the foam the grub resides ; forming this kind

of retreat, probably, for a defence against the larger insects whose prey it would become, and also, perhaps, in order to protect it from the rays of the sun. On removing the foam, the grub does not long remain uncovered, but soon emits more froth, to conceal itself from observation. In this retreat it goes through its metamorphoses. The winged insect is of a brown colour, and is common, but so nimble that it will spring to the height of several feet if touched.

## MARY.

Here is the path on the edge of which I gather the plantain, but look, Esther, all the leaves are faded, and the plants are withered and dead.

## ESTHER.

Some animal must have injured the roots : let us scrape away the earth and examine them. Oh ! I see what it is ; a hedgehog has been the depredator : the upper jaw of this animal is much longer than the lower ; and with it he bores under the plant, gnawing the root off upwards, and leaving the tuft of leaves untouched.

## MARY.

I never saw a hedgehog eating.

**ESTHER.**

Probably not; for these animals lie concealed during the daytime, and come out only in the evening to search for their prey. Hedgehogs are very fond of black-beetles, and are often kept to destroy them in houses where these insects abound.

**MARY.**

But why does the gamekeeper kill hedgehogs? What mischief do they do?

**ESTHER.**

I believe they are considered destructive to game; eating the eggs, and destroying the young birds, when an opportunity offers: but here is mamma, with Frederick and Henrietta. What is that, Frederick, you have in your hand?

**FREDERICK.**

A few bean-pods, which I have brought to show you how some bird has been devouring all the beans in the garden.

**MRS. F.**

I suspect that a jay is the delinquent; for these birds are very destructive to beans, and will carry them off in great quantities. They, however, make ample amends to the farmer,

by the service they render him in eating the grubs of the cockchafer.

FREDERICK.

I thought the rook had been the great friend to the farmer in destroying these grubs ?

MRS. F.

So it is : for three months in the year they form the chief food of the rook and its young ones. Although the rook and jay are sad enemies to game, by destroying the eggs, and, even by their labours in the fields, sometimes do much mischief, yet there can be little doubt that the damage they thus commit is amply repaid by the benefit that results from their unceasing exertions in destroying that most insatiable insect, the cockchafer.

FREDERICK.

I believe that pigeons are more injurious to farmers and gardeners than any other birds: they devour such an immense quantity of grain, both at seed-time and harvest. Pigeons assemble in large flocks; and, if they attack a field of peas or tares, they do great damage. How very large the wood-pigeons are which the game-keeper sometimes shoots !

MRS. F.

The largest domestic pigeons I ever saw

were in the north of Italy, particularly at Padua, where, to give you an idea of their size, I must tell you, that we used frequently to have a dish of pigeon cutlets, in which each cutlet was made from the wing of a pigeon.

ESTHER.

But it was at Venice, I think, you have told me, mamma, that you saw the greatest quantity of pigeons?

MRS. F.

You allude to the pigeons of St. Mark, I suppose?

HENRIETTA.

What are they?

MRS. F.

The pigeons of Venice have something of historic interest attached to them. Every one who visits that city must be struck with the immense number of pigeons which inhabit the piazza of St. Mark. Their history is this:—In the early times of the republic, it was the custom, on Palm Sunday, to set at liberty, from above the great door of the church of St. Mark, a number of birds, principally pigeons, with pieces of thick paper attached to their claws. These incumbrances, by impeding their flight,



obliged them to descend in the piazza, where the people scrambled for them, and carried them off for their Easter dinner. This distribution was made three times during the ceremonies performed on Palm Sunday. Sometimes it would happen that the pigeons released themselves from their fetters, and, escaping from their pursuers, found refuge in the roof of the church, while others sought an asylum in the ducal palace, under those celebrated *piombi*\*, the state prisons of the Venetian republic. Here they rapidly increased; and the Venetians not only respected their retreat, but extended their favour to the whole tribe, and declared that pigeons should not be among the birds sacrificed to their sports on Palm Sunday; nay, more, — the pigeons of St. Mark were protected by the government, which decreed that little cells should be placed for them to build in, and that they should be fed at the expense of the state. An officer of the public granaries distributed their rations every morning in the piazza, and in front of the ducal palace; and they were thus regularly maintained by the state,

\* These chambers consist of the upper portion of the Doge's palace; and are so called because they are roofed with lead (*piombo*). They are light and airy; but Pellico, one of their most recent occupants, complains bitterly of their intense heat, and of his sufferings from mosquitos. (See his "Prigioni," c. 26.)

until the foreign invasion of 1796, when these pensioners were rendered dependent upon public charity.\* They are now fed by an old Venetian lady; and, regularly as the church of St. Mark strikes two, they assemble in the piazza to receive their daily allowance.

HENRIETTA.

Thank you, aunt, for this curious account. How much I should like to see Venice!

MRS. F.

It is, indeed, a very interesting place, not only from its historical and poetical associations, but from its numerous works of art; many of which, like the city itself, are fast falling to decay. Venice has been, not inaptly, called "the Palmyra of the sea."†

ESTHER.

Did not the French carry away the famous bronze horses, the lion of St. Mark, and all the celebrated paintings?

MRS. F.

Yes; but they were restored at the peace. Count Cicognara related to me a curious ac-

\* See Festa delle Palme, in Signora Michiel's "Feste Veneziane."

† Valery, vol. i. p. 356.

count of a painting of Titian's which escaped their research.

HENRIETTA.

Will you have the kindness to tell us about it, aunt ?

MRS. F.

The picture, which represents the Assumption of the Virgin, was the altar-piece of the church of the "Frari" in Venice, and was so black that the subject could scarcely be discerned. Knowing that there was a Titian in the church, the French went to see it; but finding the painting defaced, and the canvass of so large a size, (it is larger than Raphael's Transfiguration,) they did not think it worth removing. A few years since, Count Cicognara, the accomplished director of the Venetian academy\*, examined the painting more closely; and, beginning to surmise the cause of its dingy appearance, he ascended a ladder, and, with some spirits of wine, and a piece of cotton wool, tried, in one corner, to clean the picture. To his great delight, he found that the painting was uninjured; but that, from the position of the door of the church, the wind blew the resinous fumes of the incense used in the Roman Catholic ser-

\* And author of several works upon painting and sculpture.

vice directly against the picture, and that it had thus become coated with a complete black resinous enamel, yielding to the application of the spirits of wine. The next point was to gain possession of the painting. He therefore went to the Frari, and offered to exchange it for a new altar-piece by a modern master. The proposal was accepted; and, once in the possession of this treasure, Count Cicognara resolved it should be publicly cleaned, in order that he might not afterwards be accused of any deception. It was accordingly moved to the academy, and there cleaned with the same application he had used in the first instance: all the black was removed; and this painting, although so large, is one of the most perfect of that master's, being injured in a single place only, where it is burnt, owing to one of the candles of the altar having, probably, fallen against it. The painting is upon wood, and its colours are in remarkable preservation, which may be chiefly ascribed to the coat of resin that preserved it from being injured by the damp.

## ESTHER.

Thank you for the anecdote. Titian died, I believe, at Venice.

## MRS. F.

He did so: he fell a victim to the plague

which ravaged that city in 1575. His was the only body exempted, by order of the senate, from the general destruction; and he was interred in the church of the Frari, which we have just mentioned; there is an inscription on the pavement to mark the spot. In the same church is also a monument to the memory of Canova, who is not, however, interred there. His heart only is in this sepulchre: his body lies at Possagno, his native city, between Bassano and Venice, while his left hand is at Rome, and his right is preserved in the academy at Venice.

FREDERICK.

Aunt, what is this little spear-shaped buttercup?

MRS. F.

It is the lesser spearwort (*Ranunculus flammula*). In this country it is called horse-hunger, from the appetite which its acrid juices are supposed to give to the horses and cattle that eat it.

FREDERICK.

But is it wholesome for them?

MRS. F.

As we cannot subsist on mere flour alone,  
“so neither can cattle in general be supported

by mere grass, without the addition of various plants, in themselves too acid, bitter, salt, or narcotic, to be eaten unmixed. Spices, and a portion of animal food, supply us with the requisite stimulus or additional nutriment, as the ranunculus tribes, and many others, season the pasturage and fodder of cattle." \*

HENRIETTA.

I should not have thought they would eat any thing so bitter.

MRS. F.

On the contrary, I believe that the bitter, the narcotic, and even the poisonous, juices of plants do not prevent them from being eaten with impunity, and forming even a wholesome nourishment to some animals. Man eats the cascada (having first extracted its poison): how many insect tribes feed on all the species of the acrid euphorbia†; and the nettle, with its poisonous sting, is furnished with numerous parasites.‡ We have already seen§ that the terrific upas is covered with insects: an Indian

\* Sir J. Smith, English Flora.

† Euphorbia canariensis is eaten by the goats in the Canaries; and the peasant in Teneriffe, when pressed by thirst, removes the bark of the same plant, and drinks the watery sap.

‡ Fifty distinct species of insect feed upon the common nettle.

§ First Series, Chapter XIII.

bird\* feeds to excess on the nux vomica; the land-crab (*Cancer ruricola*) on the berries of the manchineel tree; and the grosbeak (*Loxia*) of the Bahamas on the fruit of the poison ash (*Amyris toxifera*). The leaves of the pretty white greenhouse calla (*C. Æthiopica*), the most acrid of plants, are the favourite food of the caterpillar of a hawk-moth (*Sphinx lineata*); and a species of cockroach (*Blatta Americana*) devours the leaves of the Mexican poppy (*Argemone Mexicana*), equally acrid and more nauseous than the calla. The fiery berries of the capsicum are eaten by many tropical birds, and, in hot climates, are greedily devoured by the common poultry. "The leaves of *Kalmia latifolia* are feasted on by the deer and the round-horned elk, but are mortally poisonous to sheep, to horned cattle, to horses, and to man. The bee extracts honey, without injury, from its nectary, but the adventurer who partakes of that honey, after it is deposited in the hive-cells, falls a victim to his repast."† Thus is every thing formed for some useful end; and though it may be worthless and hurtful to the individual, as such, yet it contributes to the harmony and welfare of the whole.

\* A hornbill (*Buceros*).

† Good's Book of Nature, vol .i. p. 192.

The book of creation is open to us all, and legible to all, if studied in connexion with God's word. It is designed for the pleasure and instruction of all believers; and almost every object they see, when in a right frame of mind, either leads their thoughts to Jesus, or tends to illustrate some scriptural truth or promise. Though they may not be astronomers, yet, from a view of the heavens, the work of God's fingers, the moon and stars, which he hath created, they learn to conceive of his condescension, power, and faithfulness. Though they are unacquainted with the theory of light and colour, they can see in the rainbow a token of God's covenant and love. Perhaps they have no idea of the magnitude or distance of the sun; but it reminds them of Jesus, the Son of Righteousness, the source of light and life to their souls." This, then, "is the best method of studying the book of nature; and, for this purpose, it is always open and plain to those who love the bible, so that he who runs may read." \*

\* Newton's Omicron.



## CHAPTER XVII.

## THE PLAGUE.

THE GALLEYS AT ROCHEFORT. — CONDITION OF THE GALLEY-SLAVES. — “MARSEILLES’ GOOD BISHOP.” — HOWARD — HIS INTERVIEW WITH JOSEPH II. — HIS DEATH. — BURKE’S EULOGIUM. — ST. ROCH AND HIS DOG. — ST. CHARLES BORROMEO — HIS COLOSSAL STATUE — HIS SPLENDID MAUSOLEUM — HIS CHARACTER. — PLAGUE ORIGINATED IN EGYPT. — EMBALMING A MEASURE OF POLICY. — POSITION OF EGYPT. — GROTO OF SAMOUN. — GEOGRAPHICAL DISTRIBUTION OF MUMMIES. — ABOLITION OF EMBALMING BY THE INJUNCTIONS OF ST. ANTHONY, — FIRST APPEARANCE OF THE PLAGUE. — CONVEYED BY COMMERCE. — PRESENT STATE OF THE DELTA OF THE NILE. — MODE OF INTERMENT OF THE MODERN COPTS.

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“ As thunder quails  
 The inferior creatures of the air and earth,  
 So bowed the Plague at once all human souls;  
 And the brave man beside the natural coward  
 Walk’d trembling. On the restless multitude,  
 Thoughtlessly toiling through a busy life,  
 Nor hearing in the tumult of their souls  
 The ordinary language of decay,  
 A voice came down that made itself be heard,  
 As Death’s benumbing fingers suddenly  
 Swept off whole crowded streets into the grave.  
 Then rose a direful struggle with the Pest !”

*WILSON’S City of the Plague.*

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THE following morning Mrs. Clifford paid a visit to Mrs. Fortescue; and, finding our little party engaged with their aunt, she begged to join in the conversation.

HENRIETTA.

We were talking about the galley-slaves, Mrs. Clifford, when you came, and were wondering if they are still in the wretched state they used to be in the time of St. Vincent de Paul.

MRS. C.

It was only yesterday that I met with an account of the galleys at Rochefort.\* The writer of the narrative describes his visit to this habitation of misery and crime. He states that he first went into a large enclosed quadrangle, where a few galley-slaves were reclining under an avenue of young trees: these wretched people belonged to the class termed "*forçats à chaussette*," consisting of those whose term of captivity is nearly expired, and who are not, like the rest, chained in pairs, but wear a ring round the leg.

ESTHER.

Are not the galley slaves confined in a vessel, like our English convicts, condemned to the hulks?

MRS. C.

Yes, all excepting the *forçats à chaussette*. The hulk consists of two apartments; in one, are placed convicts sentenced to the galleys for life; in the

\* Les Bagnes. Rochefort, par M. Albouy.

other, those condemned for a shorter period. They are all chained in couples; and those sentenced to the heavier punishment are also chained to some spot in the room, while the others are allowed to move about the apartment.

A kind of muddy red is the colour in which these unhappy beings are dressed. Their caps, jackets, and waistcoats are all of the same colour: their hair is cut very close: the initials G A L. are marked both on the back and the front of their grey trowsers, and the word "*Galerien*" is stamped upon their shoes. Such is the general uniform of the galley-slave; but the convicts who are condemned for life, or for twenty years' labour at the galleys, are distinguished from the others by a green cap, and one brown sleeve to their jackets.

MRS. F.

I suppose their food is very wretched?

MRS. C.

Bread, and dried peas or beans, seasoned with a little butter and salt, form the daily mess of the galley-slave: when ill, however, he is allowed meat and fresh vegetables three times a week.

MRS. F.

This meagre diet can hardly be sufficient to support him?

MRS. C.

Probably not; but the galley-slaves call industry to their assistance, and exercise their ingenuity in working horse-hair and straw, carving ornaments of wood, or of the shell of the cocoa-nut; and, by the sale of their work, obtain the means of purchasing any little indulgence of which they stand in need.

ESTHER.

In what labour are they usually employed?

MRS. C.

Principally in working in the port of Rochefort; but, I believe, the most laborious task assigned to them is that of towing vessels down the river.

FREDERICK.

Do they draw by a rope, as we see horses towing barges along the canals?

MRS. C.

In the same manner. The harbour of Rochefort is not sufficiently deep to admit of ships taking in their guns, and they are obliged to descend to the island of Aix to complete their cargoes. The winding course of the Charente renders the passage from Rochefort to Aix very difficult, and longer than can be always accom-

plished in one tide. When a ship, therefore, descends the river, from one to two hundred of the convicts, according to the size of the vessel, are employed in the laborious occupation of towing it down.

MRS. F.

What a wretched condition theirs must be ! They must, indeed, be fit objects for the charitable labours of a St. Vincent de Paul. But it was at Marseilles, not at Rochefort, that this good man so nobly exerted himself in their behalf.

MRS. C.

Marseilles was, also, the theatre of the actions of another Christian hero.

HENRIETTA.

You allude to " Marseilles' good bishop ?"

MRS. F.

Yes ; but who was he ?

HENRIETTA.

That I cannot tell you, aunt ; for I read Pope's Essay on Man before you had pointed out to me the folly and idleness of my careless way of reading. Will you have the goodness to tell us who he was ?

MRS. F.

His name was Henri François de Belsunce; and, during the plague which ravaged Marseilles in 1720 and 1721, he eminently distinguished himself by his zeal and activity. Regardless of the risk of contagion, he went from street to street, carrying relief both to the minds and bodies of the sufferers; and, by his example and his exhortations, he caused the magistrates, the military, and all classes, to co-operate with him in the good work of charity.

———“Voulez-vous entendre  
La loi de la religion ?  
Dans Marseilles il fallait l'apprendre  
Au sein de la contagion ;  
Lorsque la tombe était ouverte ;  
Lorsque la Provence, couverte  
Par les semences du trépas,  
Pleurant ses villes désolées,  
Et ses campagnes dépeuplées,  
Fit trembler tant d'autres états.  
Belsunce, ce pasteur vénérable,  
Sauvait son peuple périssant.”

ESTHER.

I hope that he did not take the plague himself.

MRS. F.

No; although every day exposed to contagion, he never caught the malady. His life appeared to be shielded by a special providence; and he was enabled, throughout the whole du-

ration of the plague, to administer both spiritual and temporal consolation to his flock.

MRS. C.

——— " Though the noon-day pestilence  
Slays her ten thousands ; yet, beneath the shade  
Of Providence, the good man smiles secure  
And undismayed."

MRS. F.

The court twice offered M. de Belsunce higher appointments, in testimony of their sense of his humanity and generous self-devotion ; but no allurements could induce him to leave Marseilles ; and he continued bishop of that city until his death, in 1755.

MRS. C.

History abounds in examples of humanity and zeal in times of plague and pestilence. St. Roch and St. Charles Borromeo were heroes of Christian charity and courage.

ESTHER.

And then there is our own Howard.

FREDERICK.

Oh ! he was the person who was so humane to his old horses, and never allowed them to be shot ; but, when unfit for work, he turned them out into fields with comfortable warm sheds, and

fed them with hay and corn as long as they lived.

MRS. F.

His kindness to his horses was an instance of the benevolent feeling which Howard extended towards every animated being: it is, however, for his exertions in ameliorating the condition of prisoners that Howard claims the gratitude of mankind. He,

“Touch'd with human woe, redressive search'd  
Into the horrors of the gloomy gaol,  
Unpitied and unheard, where misery moans;  
Where sickness pines; where thirst and hunger burn;  
And poor misfortune feels the lash of vice.”\*

ESTHER.

How came he first to direct his attention to prisons?

MRS. F.

From having himself experienced the rigours of a dungeon: he was made prisoner by a French vessel, and placed in confinement. The misery he there endured probably first awakened his pity in behalf of his fellow-sufferers; and, on regaining his liberty, he devoted his whole life to the improvement of their condition, and visited the prisons, not only of England, but of every country in Europe.

\* Thomson.



MRS. C.

As a poet expresses it, —

“ And now, Philanthropy, thy rays divine  
Dart round the globe from Zembla to the line ;  
From realm to realm, with cross or crescent crown'd,  
Where'er mankind and misery are found,  
O'er burning sands, deep waves, or wilds of snow,  
Thy Howard, journeying, seeks the house of woe.”

MRS. F.

The anecdote of his interview with the emperor Joseph II. is well known.

HENRIETTA.

Will you have the kindness to tell it to us ?

MRS. F.

It is related that, in an interview with the emperor, Howard alluded to the state of the hospitals at Vienna, when Joseph exclaimed, —

“ How, sir, do you complain of my dungeons, when, in England, they hang malefactors by the dozen ? ”

“ Sire,” replied Howard, “ I had rather be hanged in England than live in one of your dungeons ! ”

“ In truth,” observed the emperor, when Howard had left the room, “ this little Englishman is no flatterer.”

Howard died, at last, of a malignant fever, a victim to his benevolent exertions in the cause

of humanity. He was perfectly aware of his approaching end; but for him death had no terrors: it was an event he looked forward to with hope and cheerfulness. He desired to be buried at a spot near Dauphigny, a few miles from Cherson. "Let not any monument," he said; "no monumental inscription whatsoever, mark where I am laid; but place a sun-dial over my grave, and let me be forgotten." The whole account of his death, and the observations upon Prince Potemkin, (who also died at Cherson,) are so beautiful in Dr. Clarke's Travels \* that we will read the passage this evening.

#### MRS. C.

And, if Esther will give me the third volume of Burke's speeches, we will finish the subject by reading his eulogium of Howard. †

\* Vol. ii. chap. 8.

† "I cannot name this gentleman, without remarking that his labours and writings have done much to open the eyes and hearts of mankind. He has visited all Europe — not to survey the sumptuousness of palaces, or the stateliness of temples; not to make accurate measurements of the remains of ancient grandeur, nor to form a scale of the curiosity of modern art; not to collect medals, or to collate manuscripts; — but to dive into the depths of dungeons; to plunge into the infections of hospitals; to survey the mansions of sorrow and pain; to take the gauge and dimensions of misery, depression, and contempt; to remember the forgotten, to attend to the neglected, to visit the forsaken, and to compare and collate the distresses of all men in all countries. His plan is original; and it is as full of

## HENRIETTA.

Howard must have been quite the English St. Vincent de Paul.

## MRS. F.

Both pursued the same career of usefulness ; both shared their time and fortunes with the children of affliction ; and both were, in the words of the patriarch \*, eyes to the blind, feet to the lame, and fathers to the poor.

## ESTHER.

You mentioned, Mrs. Clifford, St. Roch and St. Charles Borromeo, as instances of philanthropy : will you have the kindness to tell us who St. Roch was ?

## MRS. C.

St. Roch was born in 1295 ; and died, after a short but useful life, in 1327. He was a native of Montpellier ; but Italy was the principal scene of his noble labours. Cesena, Ri-

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genius as it is of humanity. It was a voyage of discovery, a circumnavigation of charity. Already the benefit of his labour is felt more or less in every country. I hope he will anticipate his final reward, by seeing all its effects fully realised in his own. He will receive, not by detail, but in gross, the reward of those who visit the prisoner : and he has so forestalled and monopolised this branch of charity, that there will be, I trust, little room to merit by such acts of benevolence hereafter." — Speech at Bristol, previous to the election, 1780.

\* Job, chap. xxix. verse 15.

mini, Rome, and Placentia, all felt the influence of his generous exertions during a plague which ravaged the whole country; and, in the last place, St. Roch nearly fell a victim to it himself. Attacked by this dreadful malady, St. Roch left the hospital, that he might not be a burden to others, and retired to a solitary spot, where he would probably have perished, had he not been accidentally discovered by the dog of a nobleman, who lived near the place of his concealment, and who caused him to be removed, and carefully nursed until his recovery. This incident is a favourite subject, which we often see portrayed in the works of the old masters.

MRS. F.

It has, also, given rise to the French proverb of "*Qui aime St. Roch aime son chien,*" which is equivalent to our common saying of "Love me, love my dog."

HENRIETTA.

And who was St. Charles Borromeo?

MRS. C.

He was archbishop of Milan during the plague of 1576 \*, when he consecrated his time

\* He was born in 1588, and died 1584.

and his fortune to the relief of the sufferers. His charity was inexhaustible, and his zeal in attending upon the sick, and in making processions of humiliation, rendered him deaf to the entreaties of his friends that he would consult his own safety; but he maintained that a bishop would not be faithful to his engagements if he were to desert his flock in times of danger. His self-devotion has been rewarded by the testimony of the whole of his diocese, in which St. Charles is quite the tutelary saint; and the colossal statue of him at Arona\*, and his splendid mausoleum in the cathedral at Milan, attest the gratitude of his flock.

## MRS. F.

His tomb is most splendid, and is one of the chief objects of interest in the cathedral at Milan. It is a subterranean vault, which St. Charles had himself selected as the place for his interment, little anticipating the costly sepulchre which the grateful Milanese have raised in his honour. The body of St. Charles is enclosed in a crystal sarcophagus, through which

\* His birthplace. This statue is 72 French feet in height, or 108 feet, including the pedestal. The head is 20 feet in circumference; and will, of course, contain several persons. This statue is of bronze, and weighs 1,100,000 lbs. (Milanese weight). It was erected by order of his cousin, and worthy successor, Charles Frederick Borromeo, so well known by Manzoni's tale of the "Promessi Sposi."

his features may be discerned. He is arrayed in his episcopal robes, enriched with diamonds, gold, and silver. The chapel is lined with crimson silk, and ornamented with bas-reliefs of silver, representing the actions of St. Charles. The metal employed in these pieces, and in the high altar (which is also of massive silver), cost 160,000*l.*; the workmanship was a gratuitous tribute of gratitude from the silver-smiths of Milan to the memory of this illustrious saint. All this pomp and pride of wealth form a strange contrast to the family motto, "humilitas," placed upon the tomb, and also to the humble character of him in whose honour it is erected.

#### MRS. C.

The humility, self-command, temperance, industry, and fortitude of St. Charles were not inferior to his public endowments.\* His table was for his guests: his own diet was confined to bread and vegetables. "His dress and establishment were such as became his rank; but in private he dispensed with the attendance of servants, and wore an under-dress, coarse and common: his bed was of straw; his repose short; and, in all the details of life, he manifested

\* He was the great restorer of ecclesiastical discipline in the Italian church.

an utter contempt of personal ease and indulgence." \* Gifted with a princely birth and fortune, with learning, talents, accomplishments, and high dignity, St. Charles devoted himself entirely to his Master's cause. He divided the revenues of his see into three parts: one portion he gave to the poor, another he appropriated to the repair of churches, and the third he set apart for his domestic expenditure. It is not wonderful, then, that such virtues should have so endeared him to his flock that after death he should have become the object of their grateful veneration. If ever human being deserved honour from his fellow-creatures, it was St. Charles Borromeo.

## MRS. F.

Thomson forcibly describes the horrors of the plague.

## ESTHER.

In his "Summer," I think; but I do not perfectly recollect the passage.† I have heard that, in the museum of Florence, there is a series of wax figures, representing the plague, in all its different stages, with such horrible fidelity that few persons venture to look at them.

\* Eustace, vol. iv. See also *Biographie Universelle*.

† "What need I mention those inclement skies," &c.

MRS. F.

So I have understood; but, of course, I can only speak from report of any thing so horrible.

MRS. C.

The plague must, indeed, be a dreadful malady: is it not from Egypt that it is supposed to have been first brought into Europe?

MRS. F.

Yes: the plague is traced to the Delta of the Nile, where the heat and humidity of the ground are peculiarly calculated to produce the disease spontaneously.

MRS. C.

But we do not hear of the plague in the history of ancient Egypt?

MRS. F.

No; the plague dates from the time of the emperor Justinian; and is attributed to the disuse of the custom of embalmment, and to the want of attention now paid to the removal of dead bodies, which corrupt the air, and cause this dreadful scourge.

MRS. C.

Then the practice of embalming the dead was, with the ancient Egyptians, as much a measure of precaution as of religion?



MRS. F.

Yes: this enlightened people, who, you recollect, were the physicians of the ancients, finding the necessity of the strictest attention to the preservation of the public health, rendered obligatory, as a matter of religion, that which it would have been impossible, by any other means, to enforce; and therefore sanctified a practice of public necessity. The priests were the lawgivers and the magistrates of ancient Egypt: to them she was indebted for her civil and political organisation: they had the key of all the sciences; and might, with justice, be styled "the soul of Egypt." Laws, arts, science, commerce, all emanated from them; and they soon saw the expediency of embalming the dead, in order to preserve the health of the living.

ESTHER.

But why, in Egypt particularly, were such precautions necessary?

MRS. F.

If you consult the map, you will see the peculiar physical position of Egypt.\* Its bound-

\* The following remarks are taken from a "*Mémoire sur la Peste*," by M. Pariset, who was at the head of a commission, sent into Egypt by the French government, to inquire into the origin of this malady.

ary is confined, by the desert, to the valley of the Nile, which is long and narrow, and enclosed, on each side, by chains of high rocks, covered with vast forests. In the time of Menes, all Lower Egypt, from the Thebaid to the sea, was one long marsh. The soil of the valley, being principally formed from the deposits of the Nile, was not sufficiently elevated for the water to return entirely into the bed of the river, after its periodical inundations. Now, let us picture to ourselves this vast body of water, — the river, marshes, thick vapours, a flat country, and the power of a tropical sun in a narrow valley, almost like a hot-bed, and covered with a vigorous vegetation, — let us bring all these points together in our minds, and we shall easily see what a receptacle Egypt would be for pestilential emanations.

MRS. C.

And then we must, also, take into consideration the numbers of animals of every description\* with which Egypt swarms, and which would increase the corruption of the air.

MRS. F.

Such, then, was the state of Egypt when its

\* Such as hyenas, jackals, rats, serpents, crocodiles, fish, &c. besides vultures, eagles, and other predaceous birds.

ancient population descended the Nile; for we must recollect that civilisation *descended* the river from Ethiopia, the land below the first cataracts being a newer ground, formed by the deposits of the Nile. As the people increased they were obliged to migrate northwards; and their first business would be to render the land healthy and habitable. Accordingly, we find that they cut down the forests, drained the marshes, deepened the bed of the river, and confined it within those dykes which constituted the wonder of antiquity, and of which only a few vestiges remain, at Thebes and near the Labyrinth. But still, so long as the ground was swarming with animals, it was useless to attempt to purify the air.

MRS. C.

But most of these animals were the objects of their worship?

MRS. F.

How to dispose of them was precisely the difficulty. Fire was looked upon by the Egyptians as a ferocious animal; and to burn them would have been the greatest sacrilege. To crush them in the mud, and leave them to decay, would only have increased the evil: the Egyptian priests, therefore, effected their object

by embalming them, pêle-mêle, in large caverns, which they selected for the purpose. These caverns have been discovered by modern travellers, who find them in the rocks on both sides of the river, and they are filled with animals thus embalmed by myriads.

MRS. C.

I never heard of these caverns.

MRS. F.

M. Pariset particularly mentions the grotto of Samoun\*, which he visited. It consists of a series of chambers, separated from each other by partitions of stalactites. In these apartments he found myriads of crocodiles, packed in layers, from the floor to the roof; consisting, not only of the full-grown animal, but of young crocodiles of every dimension, and millions of their eggs, all enveloped in rolls of linen, which had been dipped in some resinous matter.

MRS. C.

How singular that such a quantity of linen should have been used !

MRS. F.

Unfortunately, these substances have taken fire, either from design or accident, and a great

\* On the Arabian chain, near Moufalout.

portion is burnt. Skeletons of sharks are also found in this grotto, although it is above 100 leagues from the sea. Other caverns contain monkeys, serpents, fishes, dogs, jackals, wolves, frogs, the ibis, with jars full of its eggs, all in such vast quantities, that these animals evidently cannot have been so deposited after a natural death, but must have been hunted and destroyed, in order to relieve the country from so dense a population.

MRS. C.

Are the animals heaped indiscriminately in all the grottos, as they are at Samoun ?

MRS. F.

They are buried in the same manner in many other caverns, from which it appears, that they were sometimes interred upon the spot where they perished ; but the distribution of the mummies is generally geographical ; and, if Esther will refer to the map, she can show her cousins the places as I mention them.

In every part of Egypt, from Syene to Alexandria, human mummies are found. From Syene to Thebes they consist principally of fishes. At Thebes we find apes, crocodiles, serpents, and domestic animals. Lower down the river, near Syout, dogs, jackals, wolves, crocodiles, with their eggs, lizards, frogs, and

swallows. Descending the river still further, vast chambers are to be seen, in which apes are placed in tombs of stone, and the ibis is embalmed, with large earthen pots, closed with plaster, and filled with myriads of its eggs. At Beni Hassan, Champollion found millions of yards of ground covered with mummy cats, some simply embalmed, others preserved with magnificence. At Achmin there is a mountain of birds; and, when we descend to the plains of the great pyramid, the ground is one vast mummy-bed, of nearly fifty square leagues; a receptacle for animals of every size and description, from the cricket to human beings. Whether this distribution was established by law, or whether it marks the species exterminated by the new settlers, as the animals gradually receded from their steps, is a point difficult to determine.

But I must return to the subject immediately under our consideration; for, in showing you the necessity of embalming, in a hot humid climate like Egypt, we have digressed widely from the plague, which, it appears, was not known in Egypt, so long as embalming continued to be practised; and, indeed, Egypt was considered by the ancients as one of the most healthy countries of the known world.

MRS. C.

When was embalming first disused ?

MRS. F.

St. Anthony, on his death-bed, proscribed the custom as sacrilegious : it was, in consequence, abolished, and the Copts ran into the opposite extreme. Persons were interred, not only in churches, cities, and monasteries, but even in private houses ; a custom which prevails among the Copts to this day. The consequence of such a practice was the immediate appearance of the plague.

MRS. C.

When did it first appear ?

MRS. F.

In the year A. D. 542, and its first ravages were terrific. It began in the city of Pelusium, whence it spread over Egypt into Palestine, and into every country from Persia to the Atlantic, devastating the earth for a period of fifty-two years.

MRS. C.

I suppose that commerce contributed to spread the disorder ?

MRS. F.

Yes ; for, independently of being the channel through which the productions of Asia were

transmitted to Europe, the manufactures of Egypt itself were still prized, and her commodities were such as were most calculated for conveying infection. She exported flax and cotton in a raw state; and the dyes of Alexandria; the tissues of Tennis; the veils, the embroidered carpets, and the golden stuffs of Bahnesa; the dresses of Arsinœ, and the fine stuffs of Achmin and of Panopolis, were still remains of the ancient industry of Egypt.\*

MRS. C.

Then the plague in Egypt is attributable to the absence of sanitary precautions?

MRS. F.

So it appears. The country is not changed, but the wisdom of the ancients no longer exists. The waters are not drained: the wretched, half-clothed, inhabitants often subsist upon only a few thistle-leaves, or bread made of the seed of the cotton or the flax, from which the oil has been expressed. The villages are thickly populated; the streets narrow; the people crowded together with sheep, goats, camels, buffalos, &c.;

\* Nor should we omit the paper of Dekhelis, of which France, at that time, consumed immense quantities; and charters of the early French kings still exist, in the public libraries, written upon Egyptian paper, of which the manufacture is so ancient that, in the time of Pliny, letters were extant written by Sarpedon, at the siege of Troy, upon paper from the same country.



dogs and vultures are the only scavengers ; and the waters of the Nile, which the people drink, are infected by the dead animals left to float upon its surface. Their sepulchres consist merely of pits superficially dug, or of long brick edifices, in the form of ovens, above ground, in which the bodies are ranged ; and, over the original structure, several stories are successively raised, until the building assumes the form of a pyramid, often exceeding in height the tops of the adjacent houses. Each story is open at one end, and a little mud frequently forms the only mortar ; so that these weak edifices, which are often carried away by the inundations of the river, offer little or no security against the corruption of the air.

But all this even is nothing compared with the practice, pursued by the Copts, of burying their dead under the floors of the houses, or in a little court beside them, in which caves are constructed (frequently as many as eight), each formed for the reception of from eighty to ninety bodies. Sometimes they are placed under the staircase, sometimes, even, under the floor of the very room which is occupied by the family. When we take all these circumstances, therefore, into consideration, it is not surprising that Cairo, and the towns of the Delta, are never free from the plague.

MRS. C.

Then, if stricter measures were taken for the purifying of the air, it might be hoped that Egypt, and, consequently, Europe, would be freed from this dreadful malady?

MRS. F.

So it may fairly be inferred. The climate of the Delta is hot, the ground damp, flat, and filled with animal remains. On the climate man can have no influence; but, by restoring to Egypt the wisdom of her ancient inhabitants, by giving her strict sanitary laws, the great causes of infection would be removed, and the country restored to its former salubrity.

## CHAPTER XVIII.

## THE PALM TREE.

THE TALIPOT TREE. — PALMYRA, OR FAN PALM. — CLIMBING PERCH. — MIGRATORY FISH. — THE TREE LOBSTER AND THE COCOA-NUT. — FRESHNESS OF THE COCOA-NUT MILK. — TEMPERATURE OF TREES. — SAGO. — CYCAS AND TAMIA. — PALM GROVES. — THE DATE PALM. — TRADE IN PALM LEAVES. — PALM OF JUDÆA — OF MOUNT SINAI. — SPRINGS IN THE VICINITY OF THE PALM AND THE SPRUCE FIR. — THE ARECA PALM AND THE BETEL. — HEIGHT OF THE PALM AND OF SOME OTHER TREES. — LOFTY TREES THE RESORT OF THE GOLDEN-CRESTED WREN, AND OF THE HUMMING-BIRD. — ANECDOTES OF A BIRD OF PARADISE. — OF MONKEYS. — OF A MONKEY WHICH REARED SOME PUPPIES. — OF A CAT WHICH BROUGHT UP A CHICKEN. — OF THE FOSTER-MOTHER OF THE YOUNG CUCKOO.

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“Is it where the feathery palm-trees rise,  
And the date grows ripe under sunny skies,  
Or 'midst the green islands of glittering seas,  
Where fragrant forests perfume the breeze;  
And strange bright birds, on their starry wings,  
Bear the rich hue of all glorious things?

“Not there, not there, my child.”

*The Better Land, MRS. HEMANS.*

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## HENRIETTA.

WHAT is that very large leaf which I see in  
the hall, aunt?

MRS. F.

It is a leaf of the talipot tree (*Corypha um-*

*braculifera*), which was given to me the other day.

HENRIETTA.

I recollect your alluding to this tree when you were giving us an account, last holidays, of the various materials used for writing.\*

MRS. F.

These leaves, when they attain their greatest dimensions, are upwards of eighteen feet in diameter; and, as they readily receive an impression from a hard point, advantage is taken of this property to use them instead of paper, and strips, prepared in milk, are applied to this purpose. All the books of importance in Ceylon, relative to the religion of Buddhoo, are written upon laminæ of these leaves; the Cingalese character being engraved upon them with a style, either of brass or iron. Many specimens of this mode of writing exist in oriental collections in this country, among which are some supposed to be between 500 and 600 years old, which are still very perfect. The Birmans also write upon the talipot leaf, and the Birman king presented to the governor of Ceylon the finest specimen he could obtain of the manner in which the books in

\* First Series, Chapter I.

the royal library of Ava are written. It is a volume on the Buddhoo religion, written upon laminæ of the talipot, lacquered over, and beautifully gilt.

ESTHER.

Where does the tree chiefly grow?

MRS. F.

In the interior of Ceylon, in the Birman empire, and in other parts of India. It sometimes attains the height of 200 feet: it blossoms but once during its existence, which is generally when about eighty years old. The flower-spike (which is sometimes thirty feet long) then bursts its envelope with a loud explosion. In the course of about fifteen or twenty months from the time of the flower's expansion, it showers down an abundance of nuts, and then dies, having left another race to succeed it.

ESTHER.

Are the leaves applied to no other purpose than as a material for writing?

MRS. F.

To many: their extraordinary size renders them very useful. A single leaf will afford shelter to fifteen or twenty persons, and the common people use them for tents. When cut

at the extremity of the petioles (or leaf-stalks), they are said to be employed to protect the heads of those who have to force their way through the jungles. For this purpose a portion only of the leaf is used; the thicker part, which was attached to the petiole, is placed forward, and, the sides hanging over the ears, a kind of wedge or inverted keel is formed, which forces the branches aside as the wearer pushes forward.\*

#### ESTHER.

Mrs. Clifford tells me that the palmyra (*Borassus flabelliformis*) is used in India, by the natives, instead of paper. The leaf is separated longitudinally, according to its natural segments; and the characters are traced with an iron style, by a series of punctures through the cuticle of the leaf, and the writing is rendered legible by smearing it over with a composition of lamp-black and cocoa-nut oil. The leaves of the palmyra are also used as fans (or hand punkahs, as they are termed in India;) for this purpose the extremities of the leaf are pared close, and confined with wire; and these fans are generally painted of a variety of gaudy colours.†

\* Sir Alexander Johnstone.

† Hooker's Botanical Miscellany, vol. iii. p. 37.

MRS. F.

The palmyra, or fan palm, is also rendered remarkable from it being the tree which is ascended by a fish (*Perca scandens*) of the perch kind.

HENRIETTA.

I never heard before of a climbing fish.

MRS. F.

This fish was found by a traveller in Tranquebar; and it not only creeps upon the shore, but, as I was telling you, ascends trees, in search of the crustaceous animals which form its food.

HENRIETTA.

But how can it climb?

MRS. F.

For an account of the admirable structure by which it is enabled to perform these extraordinary movements, I refer you to Mr. Kirby's Bridgewater Treatise, where the whole operation of ascending the tree is fully described. But this is not a solitary instance of a migratory fish. The flat-headed hassar (*Doras* genus) roams about in the most extraordinary manner. When the pools in which they commonly reside are dry, these fish (which are about a foot long) move by land, in search of others in which the

water is not yet evaporated. They travel in droves by night. A strong serrated arm, which constitutes the first ray of its pectoral fin, is used as a kind of foot; and the fish pushes itself forwards, by means of its elastic tail, nearly as fast as a person would leisurely walk. The stony plates which envelope its body probably facilitate its progress, in the same manner as those under the body of serpents, which, in some degree, perform the office of feet.\*

ESTHER.

Bosc, the French naturalist, also found a migratory fish in the fresh waters of Carolina.

MRS. F.

And then there is the tree lobster, or crab, which ascends the cocoa-nut and other palms, and devours their fruit.

HENRIETTA.

What a curious sight it must be to see these animals climbing the cocoa-nut trees!

MRS. F.

In a missionary voyage to the South Seas†, which I have been lately reading, mention is made of crabs‡ which live under the cocoa-

\* Dr. Hancock.

† Bennett and Tyerman, vol. ii. p. 33.

‡ Cancer latro.



nut trees, and subsist upon the fruit that falls from them. By means of its front claw the animal tears off the husk ; and then, inserting the same instrument into one of the eyes or holes at the end of the nut, it beats it with violence against a stone, until it is cracked ; the shell is then easily pulled to pieces, and the fruit is devoured at leisure. Sometimes, by widening the hole with their round gimlet claws, these animals effect a sufficient entrance to enable them to scoop out the kernel without breaking the nut. These crabs burrow in the earth, under the roots of the trees that furnish them with provision ; prudently storing up in their holes large quantities of cocoa-nuts, stripped of the husks, at the times when the fruit is most abundant, against the recurring intervals when it is scarce.

## ESTHER.

What is the cause of the milk of the cocoa-nut being so delightfully cold ? Travellers always speak of it as so grateful and refreshing in a tropical climate. .

## MRS. F.

The singular and refreshing coolness of the cocoa-nut milk depends upon the fact, which has been clearly established by botanists, that

## TEMPERATURE

the temperature of a tree is the same as that of the soil in which its roots are planted, viz., warmer than the atmospheric air in winter, and colder in summer. The sap which is absorbed by the roots of a tree rises vertically in the trunk; and the fruit of the cocoa, being nourished by sap pumped up by its pivot roots, at a considerable depth, and the thick pericarp\* of the fruit (or cocoa-nut shell, as we call it,) excluding the influence of atmospheric air, the cocoa-nut milk retains the low temperature of the soil whence its roots absorb the nourishment. †

ESTHER.

Thank you, mamma.

MRS. F.

Buffon was the first to observe that, if a tree were cut in winter, the interior of the trunk would be found warm; and subsequent observations have established the fact, that from autumn to spring the temperature of trees is higher than the surrounding air, and that from spring to autumn it is lower.

\* Every fruit consists of two parts, the pericarp and the seed: every thing, therefore, in a fruit which is outside the seed belongs to the pericarp.

† De Candolle, *Physiologie Végétale*.

## ESTHER.

Then the more superficial the roots of a tree the less the difference of temperature; and plants, therefore, with shallow roots feel the cold and heat more than those with deep ones.

## MRS. F.

Living trees, also, are warmer than dead, as was first observed by Saussure, who remarked that the snow melted more rapidly at the foot of some living trees than it did by some dead ones. This is an important fact, and one which is of great use in practical gardening. But to return to the subject of palms.—I have already described to you several interesting species. The Seychelles' palm, and the cocoa-nut, we conversed about some time back\*: the wax palm of the Andes I have also mentioned†; and you, doubtless, are well acquainted with the history of the *Mauritia* palm, upon which the tribes of the Orinoco lead a parasitic existence.‡

## HENRIETTA.

You have not told us about the sago palm, aunt.

\* First Series, Chapter IV.

† Chapter IX.

‡ Bertha's Journal, and De Humboldt's Voyage.

MRS. F.

No; because, as my object is not to save you the trouble of searching for yourselves, I generally avoid giving you that information which is easily accessible, if you will take the time to look for it; and an account of the farinaceous substance, called sago, is readily to be procured in any encyclopædia. But the production of sago is not confined to one genus of palm (*Sagus*), almost all the palmæ furnish it in greater or less quantities.\* It is also found in *Cycas revoluta*; and the Hottentots procure it from *Zamia cycadifolia*. The stem of this plant, when stripped of its leaves, resembles a large pine-apple. It is called the Hottentot bread-fruit. The people bury it for some months in the ground, then pound it, and extract a quantity of farinaceous matter, of the nature of sago.†

ESTHER.

How elegant the palms must be, growing in their native country! Thomson alludes to their beauty, when he says

“Broad o’er my head the verdant cedars move,  
And high palmettos lift their graceful shade.”

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\* De Candolle, *Propriétés Médicales des Plantes*.† Hooker’s *Botanical Miscellany*, vol. ii. p. 963.

MRS. F.

Yes; and Captain Carmichael, speaking of the effect of a fine grove of the *Sagus Rumphii*, which exists in the botanic garden of Calcutta, observes \*, “It has been supposed by many persons, that the first idea of the Gothic column and arch was suggested by the stems and fronds of the palm. If any thing could confirm in that opinion such as entertain it, it would be the appearance of this grove, than which nothing can approach nearer to the finest specimens of that style of architecture. The trees are arranged in regular avenues, crossing each other at right angles; and the height of the stems is so equal, and the arching of the fronds so true, that I could hardly persuade myself that such perfect symmetry could be attained without the assistance of art. The foliage is so thick overhead that not a ray of light can penetrate from above; and so completely is vegetation destroyed in the shade that, while walking through it, I fancied myself treading the cold paved floor of a Gothic cathedral.”

HENRIETTA.

Pray, aunt, what kind of palm is it which the Italian painters so often place in the hands of the saints and martyrs?

\* As quoted in Hooker's *Bot. Mis.* vol. iii. p. 36.

MRS. F.

The date palm (*Phœnix dactylifera*) is, I believe, the species which they mean to represent: this is still used by the Roman Catholics on Palm Sunday, and by the Jews in their celebration of the feast of the Passover. The exportation of the leaves of this palm affords an object of commerce at Nice, Genoa, and its vicinity, where the tree grows, for the use of the Jews for Palm Sunday, and for the Passover. Several vessels quit Bordighiera, in the territory of Genoa, with this singular cargo; some carry it to Holland, whence it is transmitted to Poland for the Jews, who purchase these leaves in great quantities.

ESTHER.

This palm is, probably, the same that has been always used by the Jewish nation, for it abounds in Judæa.

MRS. F.

Yes; so characteristic a feature is the palm in that country that it was latterly made the symbol of Judæa. In the medal struck by Vespasian, on his conquest, Judæa is represented as a female captive, sitting under a palm tree; and the same effigy is introduced in a coin of Titus,

struck upon a similar occasion. Pope alludes to this circumstance when he says

“Beneath her palm tree sad Judæa weeps.”\*

#### ESTHER.

The palm affords a constant simile in scripture. Jericho was called “the city of palms;” and Deborah dwelt and gave judgment under a palm tree. † In Laborde’s beautiful work on Arabia Petræa there is an engraving of a curious wild palm tree, growing near Mount Sinai. Speaking of this interesting tree, he states, that the elegant graceful form, in which we are accustomed to see it, is produced, in a great measure, by art. At times it forms impenetrable forests; but it is more frequently found isolated, near a fountain; thus serving to the thirsty traveller as a friendly beacon, pointing out the spot where water may be found.

#### MRS. F.

I have understood that, in America, the spruce fir is a similar indication to the natives of the existence of springs in its vicinity; this tree delighting in cool damp situations. Water is always to be found wherever a clump of them is growing.

\* Epistle v.

† Judges, chapter ix. v. 5.

ESTHER.

Mamma, before we finish the subject of palms, will you have the kindness to give us some account of the areca palm (*Areca catechu*), so much used in India and China with the leaf of the betel.

FREDERICK.

Do you allude to the custom usually called "chewing the betel?"

MRS. F.

Yes: the nut of the areca palm, and the leaf of the betel vine, mixed with quicklime, constitute the ingredients requisite for this ceremony. The areca palm grows in Malacca, in the Eastern Islands, and in Cochin China: the nuts which are imported from the last-mentioned country are those most esteemed by the Chinese. The areca palm grows from 40 to 50 feet high, and is three years before it produces fruit. The quantity of nuts exported to China is enormous. The betel vine (*Piper Betel*) is of general cultivation throughout India.

HENRIETTA.

Is the habit of chewing betel common?

MRS. F.

It is prevalent among all the Eastern nations, but most especially among the Malays, with whom



the practice is commenced even in childhood. In Sumatra every one carries the ingredients about with him: the prince in a gold, the rich in a silver, stand; the poor in a brass box, or a mat bag. This stand contains several smaller divisions, for holding the several ingredients, which consist of the areca-nut, called *Pinang*, the betel-leaf, termed *Sirih*, and the *Chunam*, a kind of quicklime, prepared from calcined shells. In addition to these articles, the stands also contain divisions for holding the instruments employed in cutting the nut, and spatulas for spreading the chunam.

HENRIETTA.

When is the betel presented to guests?

MRS. F.

After the first salutation is over, the betel is offered as a token of hospitality and politeness. To omit it, on the one hand, or to reject it, on the other, would be deemed an affront.

HENRIETTA.

And how is it mixed?

MRS. F.

A small quantity of the chunam is placed upon a betel-leaf, and folded up with a slice of the areca-nut. The mastication of these plants

is considered to be very wholesome by those who are addicted to the practice; but the black appearance which it gives to the teeth (although it is said to preserve them), and the brick-red lips and mouth, produce any thing but an agreeable appearance.\*

ESTHER.

Is not the wax palm (*Ceroxylon Andicola*) the most lofty of all the palm trees?

MRS. F.

Yes; and it attains, I believe, the highest elevation of any endogenous† tree; De Humboldt and Bompland having measured specimens as high as 180 feet; but the cabbage palm (*Areca oleracea*) is nearly as tall. The cocoa attains from 60 to 80 feet; the date from 50 to 75 feet. But when I say the wax palm is the highest of the endogenous plants, I do not mean to include the running stalks, such as the bamboo, for they are, of course, capable of a still greater extension; the bamboo being sometimes 500 feet long.

\* Bennett's Wanderings in New South Wales, and Hooker, in Botanical Magazine.

† In *Exogenous* plants (from the Greek, I grow out,) the stem is formed by successive additions to the outside of the wood, as the oak, fir, &c. In *Endogenous* (from the Greek, I grow in,) it is increased by successive additions to its centre, as in the palm, plantain, &c.

ESTHER.

How are these elevations as compared with exogenous trees?

MRS. F.

The araucarias are, I believe, the highest trees known. The pine of Chili (*Araucaria imbricata*) attains an elevation of 260 feet; and the Norfolk Island pine (*Araucaria excelsa*), has been measured as high as 228 feet. *Pinus Douglasii* has been found 230 feet high, and 50 feet in circumference\*; and *Pinus Lambertiana* 215 feet in height, and 57 feet in circumference. The teak tree rises to 200 feet; the tulip tree (*Liriodendron tulipifera*), the larch, the *Eucalypti*, and the cedar of Lebanon, to 150 feet; the oak from 80 to 100; the lime to 90; and *Magnolia grandiflora* sometimes reaches 95 feet, though its ordinary stature is from 60 to 70 feet.

FREDERICK.

It is curious that the little golden-crested wren should generally choose the tallest trees to perch upon. This pretty creature is always seen hopping upon the cedar of Lebanon, or some other tall tree, such as the fir or the oak; and sometimes, when I have heard its little weak cry,

\* *Pinus Douglasii* grows in large forests, and specimens of its bark have been cut twelve inches in thickness.

I have been surprised at the height of its resting-place.

ESTHER.

The cabbage palm, and other lofty trees, are the favourite resort of the humming-bird\*, which is even less than the golden-crested wren.

FREDERICK.

What is the difference in their size and weight?

ESTHER.

The golden-crested wren is nearly three inches and a half long, and weighs seventy-six grains.† The smallest species of humming-bird weighs only twenty grains, and measures only an inch and a quarter in length: the female is still smaller.‡

MRS. F.

The bird of paradise is also a frequenter of tall trees. I was reading, the other day, an interesting account of this bird§, which I will relate to you, as we have yet a short time before we go to our studies.

\* Bullock's Mexico.

† Bewick's British Birds.

‡ Donovan.

§ See Bennett's Wanderings.

ESTHER.

We shall all be very glad to hear it; for the history of the bird of paradise is so mixed with fable that it is difficult to arrive at exact truth respecting it.

MRS. F.

Indeed, so anxious have the natives been to keep us in the dark, that it is only within these last seventy or eighty years that they have offered these birds for sale with their legs on.

The bird of paradise (*Paradisea apoda*) is a native of New Guinea, and the neighbouring islands, where it is called by the inhabitants "bird of the sun." During the dry monsoon these birds go to the Aroo Islands, and return to New Guinea as soon as the easterly or wet monsoon sets in.

ESTHER.

Are they gregarious?

MRS. F.

They always fly in flocks of from thirty to forty; and are led by an individual which the inhabitants of Aroo call the king, but which is totally distinct from the species usually denominated the little king bird of paradise. This leader is black, with red spots: he constantly flies higher than the rest of the flock, which

never forsake him, but settle as soon as he settles; a circumstance that occasions their ruin when the king alights on the ground, from which they are unable to rise, on account of the singular structure and disposition of their plumage.

ESTHER.

I suppose this inability to raise themselves from the ground is occasioned by their airy plumage being caught by the wind in their attempts to rise?

MRS. F.

Yes: they are unable to fly with the wind, as it would quite destroy their loose and beautiful plumage: they constantly take their flight against it; and are cautious not to venture out in hard-blowing weather, inasmuch as a strong gale frequently causes them to fall to the ground. In Aroo they often settle upon the teak, where they receive shelter from its foliage, and feed upon its small fruit.

FREDERICK.

How are the birds of paradise caught?

MRS. F.

The natives have various ways of taking them: they either catch them with bird-lime or in a

none, or they shoot them with blunt arrows. As soon as a bird is killed they cut off its legs, and dry and fumigate it with sulphur, or smoke only. Mr. Bennett gives an interesting account of a bird of paradise which he saw at Macao, in an aviary where it had been confined for nine years.

HENRIETTA.

'We should like to hear his description.

MRS. F.

Mr. Bennett states that this elegant creature has a light, playful, and graceful manner : he dances about his cage when a visitor approaches, and seems delighted at being made an object of admiration. His notes are very peculiar, resembling those of a raven ; but his tones are much more varied than those of that bird. The bird of paradise is not ravenous, but eats with moderation ; its food consisting of boiled rice, with egg, plantains, and living insects of the grasshopper tribe : these it contrives to catch in its beak, with the greatest celerity ; but it will not touch them if they are dead. It rarely alights upon the ground ; for so proud is the creature of its elegant dress that it never permits a soil to remain upon it ; and it may be frequently seen spreading out its wings and feathers, and regarding itself in every direction,

to observe whether the whole of its plumage is in perfect condition.

FREDERICK.

Then this bird must be as vain as a peacock?

MRS. F.

I should say, even more so. The time Mr. Bennett saw it to the greatest advantage was when occupied on its morning toilet; a ceremony performed at an early hour, as the bird always performed its ablutions twice in the day. Mr. Bennett says it was curious to observe how every feather was examined, and passed gently through its bill, in order to be thoroughly cleaned; and it was equally amusing to remark the conscious manner in which it would display its beautiful plumage, uttering notes of delight, as if enchanted with its own beauty. After completing its toilet it would descend to the lower perch, and look out for its favourite grasshoppers. The prehensile power in the feet is so great that he would turn himself round upon his perch without losing his hold. The glare of the sun annoyed him, and he delighted in a shelter from its rays. A looking-glass being brought him, he earnestly regarded the reflection of himself, never quitting his position the whole time the looking-



glass remained before him; and when it was moved lower in the cage, he instantly followed it; but appeared impatient that his actions should be closely imitated by the reflected figure. A portrait, the natural size of the bird, was taken by a Chinese, and being shown to him he immediately recognised it, and, uttering his cawing congratulatory notes, first pecked gently by its side, and then jumped about as if welcoming a companion.

#### ESTHER.

This story reminds me of an anecdote given by De Humboldt\*, of a monkey who distinguished, with great sagacity, the engravings in a work of natural history. The plates were not coloured, and yet the monkey stretched out its little hand to snatch at a wasp or a grasshopper each time the plates of those insects were presented to him; but viewed with the greatest indifference the engravings of skeletons, herds of quadrupeds, &c., which the book likewise contained.

#### HENRIETTA.

I have also read a story of a dog recognising a full-length portrait of his master.

\* Voyage, t. vi.

MRS. F.

The anecdote, though currently related, is not, I believe, well authenticated. What kind of monkey was it, Esther, of which you have been speaking?

ESTHER.

That which is called the "*Tití* of the Orinoco" (*Simia sciurea*). It is described as very handsome, of a beautiful golden yellow, and a native of the banks of the Cassiquary. Spiders are its favourite food.

MRS. F.

I recollect the account of this little animal. No monkey has so much the physiognomy of a child, the same innocent expression, the same arch smile, the same rapid transition from mirth to sorrow. When alarmed, its large eyes instantly fill with tears. If a number of these monkeys, shut up in the same cage, happen to be exposed to rain, they curl their tails round their necks, and entwine their arms and legs round each other to keep themselves warm. The Indian hunters assert, that they often meet in the forests groups of ten or twelve of these monkeys huddled together, and uttering lamentable cries, because those on the outside are trying to push themselves into the middle of the group to get the warmest berths.

## HENRIETTA.

**How much I should like a tame monkey !**

## MRS. F.

I once had one who took upon herself the entire care of four terrier puppies, whose mother had died. It was very amusing to see the ridiculous manner in which she nursed them in her arms, fed them, followed them wherever they went, hushed them to sleep when they cried, and corrected them, by a smart box on the ear, whenever they incurred her displeasure. This lasted until the puppies grew strong enough to carry the monkey, when she exacted a return for the care she had bestowed upon them during their infancy ; riding upon their backs, whenever it suited her pleasure. This proceeding the puppies often attempted to resist, but in vain : she would slyly take her opportunity for jumping upon their backs, and, once mounted, it was impossible to unseat her. A tap in the face, or a pull of the ear, speedily enforced obedience ; and, like the old man of the sea, in the story of Sinbad the Sailor, the foster-mother would triumphantly maintain her seat, until she grew tired of her ride, and voluntarily dismounted.

## ESTHER.

Mrs. Clifford related to me a curious anecdote

dote of a cat rearing a chicken. It seems that puss carried away the chicken from its mother, soon after it was hatched ; with what object, in the first instance, I cannot pretend to say. She took it however to her own basket, where she kept it until it grew up ; bestowing upon it the greatest care and affection.

FREDEBRICK.

But the cat could not feed it ?

ESTHER.

Of course not : that office was performed by others ; but the cat watched the chicken with maternal solicitude ; kept it warm at night, and defended it most zealously from all intruders.\*

HENRIETTA.

Will birds rear the young of another species ?

MRS. F.

Constantly. A greenfinch has been reared by a redpole. Some young sparrows being left upon a lawn, were immediately fed by a variety of birds, which hastened to their assistance ; and four ravens have been reared by a pair of magpies who had lost their own young, and immediately transferred their attentions to the little orphans.

\* The above anecdotes are facts.

ESTHER.

Is it true that the birds in whose nests the young cuckoos are deposited, are not always able to provide them with a sufficiency of food?

MRS. F.

I believe it to be an admitted, though singular fact, and it is stated, that on such occasions, they procure the assistance of their neighbours. One of these nestlings has been known to have the attendance of twenty titlarks, and another of forty-eight wagtails; but it does not appear that the cuckoo is always fed by birds of the same species as its foster-mother; a spotted flycatcher having, on one occasion, lent its assistance, where three hedgesparrows proved insufficient to supply the urgent demands of a young cuckoo.\*

HENRIETTA.

But how could the hedgesparrow make the flycatcher understand what it wanted?

MRS. F.

The most easy way of accounting for it is, to conclude that the hedgesparrows did not exercise any influence over their assistant; but that parental sympathy impelled the birds to succour

\* Zoological Journal, No. xv.

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the young, even of a strange species. The calls of the nestling cuckoo, when stimulated by hunger, are well known to be so extremely clamorous, and incessantly repeated, that the flycatcher and other birds may have been attracted by them; and thus become associated in the same task, without any previous communication with each other.

## CHAPTER XIX.

## THE CURFEW.

DESCRIPTION OF THE CURFEW. — ITS INTRODUCTION A MEASURE OF POLICY. — CURFEW BELL STILL RUNG IN SOME ENGLISH TOWNS. — CHIMNIES. — OCTAGONAL KITCHENS. — CARRIAGES OF THE SAXONS. — COLOURS OF THE ROYAL LIVERIES. — HORSES PAINTED RED. — TAILS OF ARABIAN HORSES TINGED WITH HENNEB. — NORWEGIAN FLOORS STREWED WITH JUNIPER. BEDSTEAD OF RICHARD III. — THE STRONG BOX. — CROSSED-LEGGED FIGURES UPON SEPULCHRAL MONUMENTS. — VOUE-AU-BLANC. — INFLUENCE OF EARLY EDUCATION.

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“ On a plot of rising ground,  
Hear the far-off curfew sound,  
Over some wide-water'd shore,  
Swinging slow with sullen roar.”

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MILTON.

## ESTHER.

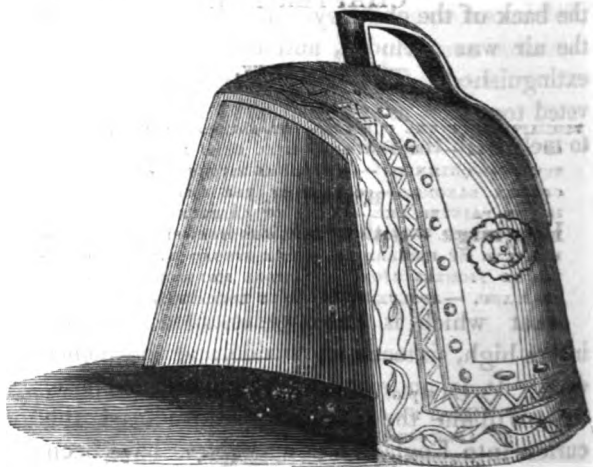
HENRIETTA, did you ever see an engraving of the curfew?

## HENRIETTA.

No; I should like very much to look at one.

**ESTHER.**

Here, then, is a representation of the curfew, copied from one which has been in the family of a clergyman \*, from time immemorial.



**THE CURFEW.**

**HENRIETTA.**

Are there any others in England?

**MRS. F.**

Some were said to be remaining, in the last

\* The Rev. ——— Gostling.



century, in Kent and Sussex. You see, by its form, how it was used; the wood and embers were raked up as closely as possible to the back of the hearth, and then the curfew was placed over them; the open part being set against the back of the chimney. By this contrivance, the air was excluded, and the fire, of course, extinguished. The curfew was of copper, riveted together, as solder would have been liable to melt with the heat.

HENRIETTA.

How large was the curfew?

MRS. F.

That which is here represented was ten inches high, sixteen inches wide, and nine inches deep. It is an erroneous notion to suppose, that William the Conqueror introduced the curfew into England: it appears to have been used at a much earlier date; for we find, that King Alfred, who restored the University of Oxford, ordered that all the inhabitants of that city should, every night, at the ringing of the curfew bell at eight o'clock, cover up their fires and go to bed. It is, therefore, more reasonable to conclude that the Conqueror revived, or continued the custom which he had previously established in Normandy; and which was used

in his time, in most of the monasteries and towns in the north of Europe; the intention being merely to prevent accidents by fire, since all the common houses at that period were constructed of timber, and the Saxon Chronicle makes frequent mention of towns burnt from being built of wood. The adoption, or revival, therefore, of the curfew in England, must consequently have been a wise measure, and must be looked upon as a law of police, the improved vigilance of which was the chief benefit derived by the English of that period from the government of William and his successors.

## ESTHER.

And yet, it is always numbered among the oppressive acts of William, and is said to have been imposed upon the English, as a badge of servitude.

## MRS. F.

Yes, it is often quoted, to show with what severity the Conqueror sought to press his cruel government, even to the very firesides of our forefathers. Thus, we read of the Battle of Hastings becoming a tale of sorrow, which old men narrated by the light of the embers, until warned to silence by the sudden tolling of the curfew. Thomson admirably describes the tyranny of the custom : —

"The shivering wretches, at the curfew's sound,  
Dejected sank into their sordid beds,  
And, through the mournful gloom of ancient times,  
Mused sad, or dreamt of better."

These errors respecting the curfew only show us how prone we are to couple with the memory of an oppressor acts of oppression not strictly chargeable to his character ; and how ready we are to impute evil intentions, where good only is designed, simply because they are the acts of a cruel disposition.

ESTHER.

But in judging of people's actions, we generally ascribe them to bad or good motives, according to the known character of the individual.

MRS. F.

Yes; and although we should be slow in passing a rash censure upon another, yet "if, in the conduct of any individual, we perceive a constant tendency to vice, we have reason to question the purity of his motives, when any part of his conduct is at variance with its general tenor ; but if, on the contrary, we perceive an uniform integrity in his ordinary behaviour, common justice and candour demand that, in extraordinary cases, we should ascribe it to the motive

which seems to sway him in the ordinary concerns of life.\*

ESTHER.

How late was the curfew continued?

MRS. F.

The practice was observed, to its full extent, only during the reign of the Conqueror and his successor, and probably, after that period, people were not compelled to extinguish their fires and lights; but traces of the custom exist, even now, in several towns in England. At Sandwich, the curfew bell is rung to this day; so it is at St. Helen's Church at Abingdon, at eight in the evening, and four in the morning; and it is likewise rung nightly at Southampton, Winchester, Ringwood, and in many other places in England. †

HENRIETTA.

Our ancestors had no chimnies to their houses.

MRS. F.

No; chimnies were not general until the time of Elizabeth, the smoke being suffered to escape by an opening in the roof.

HENRIETTA.

How comfortless that must have been!

\* Brodie's Roman Republic.

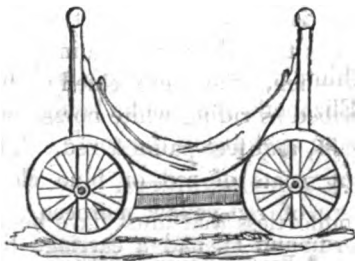
† Domestic Life in England.

MRS. F.

One thing is to be remembered, and that is, that our forefathers did not keep their rooms so warm as we do, and for many months in the year entirely dispensed with fires; indeed, so late as the reign of Henry VIII. it appears that none at all were allowed in the University of Oxford. The ancient English kitchens were curious; they were generally octagonal, with several fire-places all without chimnies; there was no wood in the building, and the steam and smoke escaped from a turret on the top of the stone conical roof.\*

ESTHER.

Nor had they much luxury in carriages. I saw, the other day, a representation of the vehicle used by the Saxons to carry great personages; it was nothing more than a hammock swung upon four wheels.



\* The kitchen of the abbey of Glastonbury still remains sufficiently entire to show the lantern roof.

MRS. F.

Queen Elizabeth's carriage had no springs.

HENRIETTA.

Have the royal liveries always been scarlet and blue?

MRS. F.

No; they have varied with the different families to which the sovereigns belonged. White and red were the colours of the later Plantagenets, the last of whom was Richard II. The liveries of the House of Lancaster were white and blue; those of the House of York were murrey and blue, and of the Tudors, white and green. The colours of the Stuarts and of George I. were yellow and red; the succeeding sovereigns have all had their liveries of scarlet and blue.

From the description of a procession at the diet of Ratisbon\*, in 1630, it would appear that red was then the favourite imperial colour. The horsemen, who were chiefly Hungarian, are described as riding white horses, with their manes, tails, and feet painted red. The riders wore long coats of red or blue cloth; their boots were of red-yellow morocco. The emperor Ferdinand II. had a carriage lined with

\* Raumer's History of the 16th and 17th Centuries.

red velvet, and the roof of red leather; and the coats of the servants of the king of Hungary were also turned up with red velvet.

ESTHER.

I thought the Arabs of the desert were the only people who painted their horses.

FREDERICK.

How do they colour them?

ESTHER.

The Arab horses have always the tips of their tails dyed purple\* or red with the henneh (*Lawsonia inermis et spinosa*), so generally employed in the East as a dye for the feet and hands.

MRS. F.

When used for this last purpose the leaves are pounded, and, being made into a paste, are laid upon the hands and feet on going to bed. When taken off a red dye is left, and another application of a mixture of soot and lime is sometimes applied, to change it to a dark olive or blackish hue. †

But we have wandered far from our subject — the domestic habits of our ancestors; — I

\* Lamartine, *Voyage en Orient*.

† Wilkinson's *Thebes*, p. 265.

was going to tell you about their beds. Feathers and down are quite modern luxuries; the ancient Britons slept on skins spread upon the floor: after the Roman invasion rushes and heath were substituted; and, on the introduction of agriculture, they slept upon straw, which material was indeed used as a couch, in the royal chambers of England, at the close of the thirteenth century.

ESTHER.

The floors were also strewed with rushes to a very late period.

MRS. F.

And I find, from the account of a late traveller in Norway, that in that country the floors of the rooms are, at least once a week, strewed over with the green tops of the fir or juniper, which present a lively and pretty contrast to the white floors. The selling of these green juniper buds forms a little trade for the poor and infirm.\*

But, talking of beds, I was reading a curious history of the bedstead which was carried by Richard III. to Leicester, the night before the battle of Bosworth Field. After the battle, the bedstead remained unclaimed, and fell into the hands of the master of an inn in that city,

\* Laing's Norway. At funerals, the road into the churchyard, and to the grave, is strewed with these green tops.



called the Blue Boar, where, I believe, it is still preserved. About a hundred years after, as a servant was sweeping under the bed, she struck with her broom against the bottom of the bedstead, and out of it fell some broad gold pieces. On further examination of the bedstead, it was discovered to have been the travelling treasury, as well as the sleeping place of King Richard. The bottom was found to be double, hollow, and full of broad gold coin, of the time of Richard; the head was constructed in the same manner, and equally stored; and even the massy swelling pillars, whose weight led every one to consider them as solid, were discovered to be hollow, and also full of money. In short, the landlady of the inn, who was a widow, became on a sudden the richest person in the town. As in those days, every one kept their money in their own houses, from the absence of better means of securing it, the riches of the mistress excited the avarice of two of her servants, who one night barbarously murdered the poor landlady. They were, however, pursued by justice, and afterwards executed.

#### HENRIETTA.

If we should ever go to Leicester, we must not forget to enquire for the bedstead of King Richard.

MRS. F.

It appears that the strong box was always placed beside the bed, from a frieze in King Edward the Confessor's Chapel, in Westminster, in which there is one so represented.

HENRIETTA.

Upon whose monument is it?

MRS. F.

I do not recollect, it is so many years since I visited the Abbey; but here comes a most welcome visitor, our friend Mrs. Clifford.

MRS. C.

I hope I am not too late to join this morning's conversation. As you are on the subject of monuments, I would recommend you to ask your aunt to show you, some day, the monuments in the Temple Church in London.

ESTHER.

You allude to the tombs of the Knights Templars.

HENRIETTA.

I have seen already the monument of one of these knights; you may know them always by their legs being crossed.

MRS. C.

It is an error to suppose that all the cross-legged figures which we see upon tombs are Knights Templars. The custom of so representing individuals is not of an earlier date than the time of Stephen, and appears to have been principally confined to England. The persons so represented are supposed to have been not only those who went to Palestine as soldiers and pilgrims, but also those who had vowed to go, or who had contributed to the expense of the crusades. The supposition is, in some degree, warranted by the fact, that there are instances of women in this singular posture on monumental remains.

HENRIETTA.

What curious vows the knights sometimes made !

MRS. F.

Yes ; but they are of little practical historical interest.

HENRIETTA.

Madame St. Ange was telling me, the other day, of the little "*Voués au blanc*," in France.

MARY.

Who are they ?

HENRIETTA.

As nearly as I could learn from Madame

St. Ange, they are children who, from some peculiar circumstance, have been dedicated at their birth to the Virgin Mary. The Duke de Bordeaux, for instance, was so *voué* from his birth, in consequence of the melancholy assassination of his father. These little "Voués" are always dressed in white until they are about eight or nine years old (I do not know the precise age), and, if in the higher ranks of life, their nurses and attendants also wear the same, and some even drive in white carriages, with the servants in white liveries. Must not they look pretty?

MRS. C.

To me, on the contrary, it would be a most melancholy sight to witness such extreme folly, not to call it by a harsher name. Think of the vanity and self-esteem excited in the minds of the little *voués*, and of the envy and jealousy awakened in those of their less distinguished companions. Reflect only, for one moment, upon all the bad feelings to which this parade must give rise, and you must at once see the mischief of so erroneous a practice.

MRS. F.

Yes; I fear there is more of the form than of the feeling of religion in these dedications; at

the same time that I am convinced religious feelings cannot be instilled too early into the mind of children. Their infant lips should be taught to pray before they can fully understand the nature of the obligation. A child ought never to be able to date the time when first it began to say its prayers; but a sense of the duty should grow up with its growth, as a feeling inseparable from and inherent in its nature. Impressions made by a parent in early years are seldom obliterated, and though often obscured for a time, yet the sublime truths of religion will burst forth with double force, "when they recur in close association with a father's affection and a mother's tenderness — with a lively recollection of a home where the kindest sympathies of the human heart shed around the domestic circle all that is lovely in life, while a mild and consistent piety habitually pointed the way to a life that is to come." \*

## HENRIETTA.

Aunt, I heard you say the other day, that you do not approve of Mrs. Westall's plan of always giving little children a *reason* for every thing she desires them to do.

\* Abercrombie on the Intellectual Powers, p. 189.

MRS. F.

Indeed, I do not. Milk for babes, we are told in Scripture; and though it is certainly right to show children the propriety of what is required of them, yet I would have them yield to parental authority rather than to argument or persuasion. Prompt implicit obedience is necessary for the happiness of both parent and child; and I would, also, have a child place such entire confidence in the judgment of its parents, as to believe and feel that whatever they enjoin *must* be right, however little it can see the necessity or object of the command. What can be a better preparation for the reception of religion than inculcating such a feeling? what a better introduction to the precepts of that gospel by which we are enjoined to walk by faith, and not by sight?

MRS. C.

How many eminent and good men have traced their most valuable attainments to the early impressions made upon their minds by the instructions of a parent.

MRS. F.

Hall, Hooker, Doddridge, and Sir William Jones, are all eminent examples of the influence of a mother's precepts — so is St. Augustine;

nor ought we to omit Timothy, who from a child had "known the Holy Scriptures," inheriting that "unfeigned faith," which had dwelt first in his grandmother Lois, and his mother, Eunice.\*

## ESTHER.

And Dr. Adam Clarke relates, that it was from his mother he received his religious impressions: he describes her as a person powerful in the Scriptures, and who, whenever she corrected her children, gave chapter and verse for it.

## MRS. C.

And such a practice, if generally followed by parents, would soon render the Bible the rule of life, and would go far to make religion, what it ought to be, the foundation and guide of our conduct. These, and numberless other examples, serve to show the importance of a parent's influence, and must deeply impress upon those who are blest with children the high responsibility under which they lie, to bring them up in the nurture and admonition of the Lord.† Unceasing diligence is necessary, under

\* 2 Timothy, Chap. iii. v. 15., and Chap. i. verse 5.

† See in *Hints on Early Education, and Abbott's Mother at Home*, some excellent observations upon this subject.

Divine assistance, to “train up a child in the way he should go;” but no other cares are rewarded with so rich a recompence; no other labour insures such heart-felt enjoyment. Parents have the immortal souls of their children in their keeping; their future happiness is in their hands. — Let them be faithful to the trust reposed in them, and they may confidently hope, through the Divine assistance, to prepare them for heaven and immortality.

THE END.

LONDON:  
Printed by A. SPOTTISWOODS,  
New-Street-Square.









